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Reviews.

THE

MEDICO-CHIRURGICAL

REVIEW.

I. THE WORKS OF WILLIAM HEWSON, F.R.S. Edited, witl
an Introduction and Notes, by *George Gulliver*, F.R.S. Lon
doñ, printed for the Sydenham Society, 1846.

II. THE BLOOD - CORPUSCLE CONSIDERED IN ITS DIFFEREN1
PHASES OF DEVELOPMENT IN THE ANIMAL SERIES. Memoirs
1, 2, and 3. By *J. Wharton Jones*, F.R.S. Philosophical
Transactions, Part 2, 1846.

WE rejoice to find that the researches of one of the most distinguished
physiologists of the English school, have been published in a collective
form ; and have thus been rescued from the kind of neglect in which they
have for so long a period been allowed to remain. For this act of posthu-
mous justice, the best acknowledgements of all who are interested, no less
in the claims of merit than in the diffusion of sound scientific knowledge,
are due to the Council of the Sydenham Society, who have, by this and
other selections, evinced a just appreciation of the leading objects for the
promotion of which this flourishing institution was established. It was an act
peculiarly becoming such an Association, at an epoch when so many kin-
dred minds have, in all parts of Europe, given a new and philosophic direc-
tion to the science of organisation, to vindicate the claims of our country-
man as a fellow-labourer in the same field, and as an original observer of
the highest order. Owing to causes which it is difficult entirely to explain,
but among the most influential of which may be placed the early death of
Hewson, and the blaze which surrounded the two Hunters, the full value of
the researches of this most sagacious investigator, not merely as regards
the properties of the blood, touching which only he is known to the majori-
ty of readers, but as bearing upon some of the highest problems in physi-
ology, have never yet been properly recognised. The satisfaction we have
just expressed, is considerably heightened by perceiving that the editor,
to whose charge these " Works" have been committed, has entered upon
his duties with a jealous care of the reputation of their author ; allowing
no occasion where the claims of Hewson demanded vindication, to pass by
unheeded ; and never omitting to proclaim how frequently he had entered
upon those paths, which, followed out in subsequent times, have conducted
more than one observer to the highest distinction in the temple of science.

The cautious, minute, and accurate experiments upon the changes induced in the red corpuscles by saline solutions, by water and other fluids, to which we shall subsequently revert, and which appeared so little promising of great results at the time when they were made, might, had Hewson's valuable life been spared, have led to the discovery of the endosmotic powers of organic membrane, ultimately revealed by the admirable researches of Dutrochet, and to which the phenomena just noticed are so closely allied.

" His researches concerning the use of the glands without regular excretory ducts show the marks of · an active and ingenious mind, and I believe first indicated a rational method of research into this important and recondite branch of physiology. His observations on the lymphatic glands are in the same spirit ; and his doctrine of central particles, so long looked upon as visionary, was a step far in advance of the age in which he lived."—P. xlvii.

Those who are well acquainted with the full scope of Hewson's inquiries, will recognise the justice of the following passage, in which Mr. Gulliver, in alluding to his early death, and to that of his talented and honest friend, Magnus Falconar, observes, " had these two ingenious men lived to continue the inquiry which they had so successfully begun, it is not improbable that the important results obtained by Schwann would long since have been anticipated in this country ; for, as I have elsewhere remarked, the researches of the German physiologist show that what Hewson propounded of the blood-corpuscles particularly is applicable to the tissues generally, and that the cell-nucleus of the present day is but another term for the central particle of Hewson."—P. xlviii. ·

If to these instances it be added that Hewson was the first to determine the true figure of the red corpuscle ; the first to examine accurately the fluid of the lymphatic system and of the thymus gland ; the first distinctly to describe the pale corpuscles or lymph globules, as they are often called, of the blood ; to say nothing of the many important facts he discovered respecting the lymphatic vessels, the fibrin and red corpuscles in the process of coagulation, and other valuable researches which it is unnecessary further to specify ; if, we say, all this was accomplished by one person who lived only to his 35th year, enough has been adduced to justify the high estimation in which it is clear Hewson was held by his contemporaries, and by the limited number of modern anatomists who were, up to the present time, thoroughly acquainted with his labours.

The biography of the good and great, with whom our author may justly be classed, is one of the most delightful and instructive departments of literature ; and among the other obligations we owe Mr. Gulliver for this admirable volume, not the least is the gratification he has afforded us by the interesting sketch he has prefixed of Hewson's life, mingled as it is with allusions to several of his intimate friends and contemporaries, foremost among whom stands the illustrious Franklin. It is a touching incident that the materials for this sketch were collected by the affectionate care of Mrs. Hewson, a woman of superior intelligence, to whom, indeed, Dr. Franklin addressed some of his best letters on philosophy. We extract the following particulars from a letter written by this estimable person to Dr. Simmons, and originally published by him in his life of Dr. Hunter.

" Mr. Hewson was born at Hexham, in Northumberland, on the 14th Novembe
O. S., 1739. He received the rudiments of his education at the grammar-scho
in that town under the Rev. Mr. Brown. His father was a surgeon and apothe
cary in the place, and much respected in that neighbourhood. With him Mi
Hewson acquired his first medical knowledge. Being ambitious to increase the
knowledge, he placed himself first under an eminent surgeon in Newcastle, Mi
Lambert, and afterwards resided some time at London, Edinburgh, and Parie
His subsequent acquirements are sufficient to prove that he visited those place
with a true love of science and desire of attaining eminence in his profession

    *   *   *   *   *   *   *

" A better son and husband, or a fonder father than Mr. Hewson never ex
isted. He was honoured with the friendship of many respectable persons nov
living, and the late Sir John Pringle showed him singular marks of regard.

" Mr. Hewson's manners were gentle and engaging; his ambition was free
from ostentation, his prudence was without meanness, and he was more covetou
of fame than of fortune."—P. xiv-xv.

The details of the professional career sketched in this letter are soon re-
lated. In 1759, Hewson came to London, lodged with John Hunter, and
attended the Anatomical Lectures of Dr. William Hunter, at a house in
Covent Garden.

" Hewson's diligence and skill soon recommended him to the favourable notice
of the brothers; and when Mr. Hunter went abroad with the army, early in 1671,
he left to Mr. Hewson the charge of instructing the other pupils in the dissecting-
room, by which means, as Mrs. Hewson remarks, he gained money at an age
when most students in surgery are only spending it.

" He entered himself a pupil at Guy's and St. Thomas's Hospitals : and at-
tended Dr. Colin Mackenzie on midwifery, and Dr. Hugh Smith on physic. In
gratitude to the liberal confidence of his father, Hewson was justly careful of his
money, and this prudence continued through life, though not so as to check the
growth of generosity ; for no man ever exercised his profession with less avidity
of gain ; he disdained every species of meanness, and possessed a judicious
liberality which elevated his character. His father had the happiness of living to
reap the fruit of this care."—P. xv.

Hewson subsequently (in 1762) studied at Edinburgh, and on his return
entered into partnership with Dr. Hunter. In the Summer of 1765, he
visited France ; on March 8, 1770, was elected a Fellow of the Royal
Society ; and in the November of the same year, he received the Copley
Gold Medal " for his papers on the lymphatic system in birds, amphibious
animals and fishes." In 1769, Dr. Hunter finished his building in Wind-
mill-street, where Hewson had a small apartment allotted to him. Mr.
Gulliver has very appropriately alluded to this celebrated place in the fol-
lowing words :—

" The Windmill-street School no longer exists; but it will be preserved from
oblivion by the names of the eminent men who lectured there. Among these
the future historian of anatomy and physiology in England will have to com-
memorate William Hunter, Hewson, Cruikshank, Sheldon, Baillie, Brodie
Charles Bell."—P. xvi.

We now approach the close of these brilliant prospects, which are thus
depicted by a distinguished contemporary. " In viewing the situation of
our associate at this period," says Dr. Lettsom, " the most gratifying pros-
pects presented themselves, where genius and industry were rewarded with

success, and domestic amities with felicity. The theatre in which he de-
livered his lectures and expounded his doctrines was crowded with men of
science, as well as with pupils, to listen to a youth grown sage by experi-
mental researches."—(P. xviii.) But this happiness was soon to end. He
was seized with a fever, occasioned by a wound received in dissection,
which proved fatal on May-day, 1774, after a short illness, in the thirty-
fifth year of his age.

He was buried at St. Martin's-in-the-Fields; but the only record of
this admirable physiologist, whose life thus fell a sacrifice to his unceasing
zeal for the advancement of science, is a meagre entry in the parish
register. Surely some more honourable memorial should hand down to
posterity the name and sterling merits of one of the brightest ornaments
our profession has ever produced. If the proposition were once judiciously
made, we have no doubt funds would readily be found to erect a tablet to
the memory of a man equally esteemed in private and in public life.

Subsequently to the death of her husband, Mrs. Hewson continued to
enjoy the esteem of Dr. Franklin, the friend of her youth, of which we
have a pleasing proof in the following letter, addressed to her from Passy,
and bearing date, January 27th, 1783.

"In looking forward, twenty-five years seem a long period, but in looking
back, how short ! Could you imagine, that it is now full a quarter of a century
since we were first acquainted ? It was in 1757. During the greatest part of
the time I lived in the house with my dear deceased friend, your mother; of course
you and I conversed with each other much and often. It is to all our honours,
that in all that time we never had among us the smallest misunderstanding. Our
friendship has been all clear sunshine, without the least cloud in its hemisphere.
Let me conclude by saying to you, what I have had too frequent occasions to say
to my other remaining old friends. The fewer we become, the more let us love
one another."—*Introd.* p. xx.

After Mrs. Hewson lost her mother, and in compliance with the fre-
quently expressed wish of Franklin that she should become his neighbour
in America, she went with her children to Philadelphia, and died in
1795, leaving two sons and a daughter. The second and surviving son,
Dr. Thomas Tickell Hewson, is, according to inquiries lately made by
Mr. Gulliver, still alive, and is the President of the College of Physicians
at Philadelphia.

Having given this brief biographical notice, which we are assured our
readers will agree with us was a proper tribute to the memory of such
a man as Hewson, we proceed to the consideration of his scientific labours,
the principal of which relate, as it is well known, to the blood. In order
to do justice to these researches, it will be necessary to enter somewhat
fully into the properties of the circulating fluid : we trust, however, that
this detail may not be devoid of interest in another point of view, as the
volume before us is enriched by copious notes, in which the judicious
iditor has brought together a large amount of important matter, collected
from various sources, his own inquiries forming a very valuable portion of
these additions.

The very interesting and comprehensive introduction of Mr. Gulliver,
in which he traces the successive progress of discovery in relation to the
blood, shows how much we are indebted to Hewson for an exact know-

ledge of many of the fundamental qualities of the circulating fluid ; and
on how many points he had anticipated the results of modern discovery.
It is, indeed, true in this, as in so many other instances, that several facts
of great importance had been discovered by earlier observers ; but then,
owing, partly, to the false hypotheses with which they were encumbered ;
and partly to the neglect and errors of subsequent writers, the whole his-
tory of the constitution of the blood was involved in great confusion when
our author commenced his " Experimental Inquiries." Upon this point
Mr. Gulliver justly remarks that—

" In considering the labours of Hewson in connection with the facts observed
and the errors held by his predecessors and contemporaries, it must be recollected
that the speculations connected with Leeuwenhoek's microscopical researches for
many years supplanted accurate experimental inquiries into the properties of the
blood ; so that the fibrin was either forgotten or confounded with the serum, and
a fanciful importance was given to the red corpuscles. When the errors conse-
quent on this state of things began to wane, the blood sunk into neglect.
Accordingly, the just observations of Malpighi, Lower, and Borelli, were lost for
the greater part of a century, while the coagulation of the blood was ascribed to
a mere cohesion or running together of the red corpuscles, and the formation of
fibrinous clots to a change in the serum. These opinions were held in Britain by
the best writers to the year 1760, and on the Continent by the most distinguished
physiologists, as Haller and Marherr, up to or even beyond 1771, the date of the
first edition of Hewson's 'Inquiry into the Properties of the Blood.' But there
were exceptions. The knowledge of Petit, Quesnay, Senac, and Gaubius, was
unquestionably in advance of that current in their day ; yet they added but little
to the facts of the older observers, so vaguely discussed by Haller, so ably used
in the masterly memoir of Petit ; and some of the opinions set forth by Quesnay
and Senac, partook of that general crudity which proved how necessary it was that
the properties of the blood should be studied anew by the experimental method."—
Introd. p. xi.

It would be unjust towards a neglected but ingenious observer, Dr.
Richard Davies, if we did not state that, in the opinion both of Dr. Davy
and of Mr. Gulliver, to this writer, who preceded Hewson by about twenty
years, belongs the merit of clearly apprehending the true method of
studying the blood, namely, by experimental research. His " Essay,"
considered as a demonstration of the distinctive characters of the three
proximate principles of the blood, is also, we are informed by the same
authority, " admirably decisive."

Although the independent existence of these three constituents, the
fibrin, the red corpuscles, and the serum, and their relation to the process
of coagulation, are for the most part well known, yet, in order to guard
against the errors which are, even in the present day, from time to time,
springing up ; and especially for the purpose of adducing a few of those
simple but convincing experiments which are a model in this field of re-
search, we quote the following from the first part of the " Experimental
Inquiries." Alluding to the inflammatory crust, and to the opinion en-
tertained by some authorities that it is formed by the serum, Mr. Hewson
remarks :

" But that it is formed by the coagulable lymph alone, after the red particles have
subsided, appears from the following experiments :

" *Experiment* 11.—In the month of June, when the thermometer in the shade
stood at 67°, I bled a man who had laboured under a phthisis pulmonalis for

some months, and at that time complained of a pain in his side. The blood, though it came out in a small stream. yet flowed with such velocity, that it soon filled the basin. After tying up his arm I attended to the blood, and observed that the surface became transparent, and that the transparency gradually went deeper and deeper, the blood being still fluid. I likewise observed that the coagulation first began on the surface, where it was in contact with the air. and formed a thin pellicle; this I removed, and saw that it was soon succeeded by a second. I then took up a part of the clear liquor with a wet teaspoon and put it into a phial with an equal quantity of water; a second portion I kept in the teaspoon; and I found afterwards that they both jellied or coagulated, as did also the surface of the crassamentum, making a thick crust. On pressing with my finger that portion which was in the teaspoon, I found it contained a little serum.

" From this experiment, it is evident, that the substance which formed the size was fluid after it was taken from the vein, and coagulated when exposed to the air; and as this is a property of the coagulable lymph alone, and not of the serum, there can be no doubt that the size was formed of the lymph."—P. 32.

In order further to demonstrate the same fact, Hewson performed many interesting experiments, in which, having observed that neutral salts have the power of preventing the process of coagulation, he availed himself of this circumstance to obtain the fibrin or coagulable lymph, as he terms it, separately from the red corpuscles.

" In these mixtures of the blood with neutral salts, the red particles readily subside, (especially if human blood be used,) and the surface of the mixture becomes clear and colourless; and being poured off from the red part, it is found to contain the coagulable lymph, which can be separated by the addition of water."— P. 12.

After all these, and a great number of other exact experiments, it is strange that any doubt should subsequently have arisen as to which was the coagulable matter of the blood. We need, however, scarcely remind our readers, that Sir E. Home and Mr. Bauer, reviving what Mr. Gulliver calls the old and discarded hypothesis of Sydenham, contended that the fibrin, instead of being what Hewson had so distinctly proved it to be, an independent constituent, was formed in the act of coagulation by the colourless matter of the red corpuscles. This error, which received little or no sanction from English physiologists, became so prevalent on the Continent, that Professor Müller was deemed to have rendered good service for proving, partly, by the very ingenious experiment of mechanically separating by filtration the red corpuscles from the fibrin in the blood of the frog; and, partly, by repeating some of Hewson's experiments with the neutral salts, that the coagulating material is altogether distinct from the colouring substance. Another theory has also been lately advocated, to the effect that both the fibrin and the albumen of the serum are contained within the pale or colourless corpuscles of the blood; a position which we believe to be utterly untenable. Whether it be true, as some physiologists contend, that these corpuscles elaborate the plastic element or fibrin; or that this change is effected by the red corspuscles; or that the fibrin is formed in some other and at present unknown way, which, considering the chemical relations of that substance and of albumen, may be regarded as the most probable explanation; however this may be, there can, we think, be no reasonable ground for doubting that, once formed, the

fibrin exists as an independent principle, composing, in conjunction with the serum, the fluid portion of the circulating blood, or liquor sanguinis.

A point on which Hewson made many valuable observations, relates to the production of the buffy coat ; and as this is a subject of practical im-portance, and one, moreover, that has received much elucidation from modern research, we are desirous of stating the results that have been obtained. It is a striking illustration of the accuracy which characterises Hewson's investigations, that he detected one of the most essential changes of buffy blood, namely, its attenuation, and this in opposition to the prevailing opinion.

"How contrary," he says, "to the conclusion, which these experiments lead us to, are the opinions of some medical writers on this subject! How frequently do we find it said, that the blood is thicker in inflammatory disorders, where that size occurs ; and that a large orifice is necessary to let out the vitiated blood ! That a large orifice is preferable to a small one in many cases, where such blood is found, I believe to be true ; but that its advantages are owing to its letting out the thickened blood, seems improbable from what we have seen in the experiments above related ; they are perhaps nearer the truth, who attribute it to the suddenness of the evacuation."—P. 40.

He further ascertained the fact, that the red corpuscles sink more rapidly in the liquor sanguinis of buffy blood than in the serum alone ; and, putting these circumstances together, it is not a matter of surprise, that he attributed the formation of the sizy coat to the attenuation of the liquor sanguinis, and to the more ready subsidence of the red corpuscles consequent thereon towards the lower part of the crassamentum.

The application of the microscope has thrown a clearer light upon the phenomenon in question ; and has shown that the peculiar attraction which, under certain circumstances, the red corpuscles have for each other, and in virtue of which they form the well-known piles or rouleaux, plays the most essential part in the formation of the buffy coat. This piling of the red discs, which is one of the most remarkable, and at the same time beautiful, appearances seen on examining a drop of blood,[*] was evidently known to Hewson ; for he remarks, in arguing for the flat form of the corpuscles, " I have seen them with their sides parallel, like a number of coins laid one against another."—*L. c.*, p. 228.

Dr. Hodgkin and Mr. Lister were the first in the revival of microscopical anatomy, distinctly to describe the disposition just noticed, which takes place in healthy blood during coagulation. But what more particularly concerns the present question is that, in buffy blood, the red corpuscles evince an increased tendency to aggregation ; a fact well known to Hunter, who, in speaking of the blood in inflammation, says, " the red globules become less uniformly diffused, and their attraction to one another becomes

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[*] The piling of the corpuscles affords to the inexperienced microscopist, the best idea as to how the red colour of the blood is produced ; for it is seen that, when the piles are formed, the so-called red corpuscles, which are, as it is familiarly known, of a pale yellow examined singly, begin from their aggregation to reflect the red ray, and to assume a pinkish tint ; and that where two rouleaus lie across each other, the tint becomes deeper ; till at last, where several piles are heaped together, the ordinary red colour of the blood is produced.

stronger;" so that the blood, when out of the vessels, soon becomes cloudy
or muddy, " and when spread over any surface, it appears mottled, the red
blood attracting itself and forming spots of red." In this passage, as
Mr. Gulliver justly remarks, Mr. Hunter has anticipated some recent ob-
servations; and if he had employed the microscope, which instrument,
however, there is reason to suppose, he did not use, he would have seen,
as Dr. H. Nasse was the first to show, that in buffy blood the red cor-
puscles more readily run together into piles, and, consequently, separate
from the fibrin more completely; circumstances which are apparently
favoured by the diminution of the corpuscles, and the increase of the fibrin
occurring in inflammation. It is then this augmented attraction of the
blood-discs for each other that ought to be regarded as the essential con-
dition on which the sizy coat depends; though there is no doubt, as
Mr. W. Jones has explained, that the massing together just noticed, in-
creases the specific gravity of the corpuscles, considered in the aggregate,
and thus allows of gravitation coming into play as a secondary cause.
This is well put by Mr. Gulliver, who remarks, "in buffy blood, they (the
corpuscles) are still more closely connected, almost as if fused together,
and the piles run into little clumps often visible to the naked eye. Now
we know that coarse particles sink more rapidly in a liquid than fine ones,
and the clumps of corpuscles in buffy blood represent much coarser par-
ticles than their composing single piles or separate corpuscles. The more
they run together, therefore, the faster they will fall in the liquor sanguinis,
so as to produce the buffy coat. Accordingly, it was found in my experi-
ments that, during the formation of the buffy coat, the corpuscles will at
first take about two and a half minutes to sink an eighth of an inch in the
liquor sanguinis, and fall five or six times faster in the next two or three
minutes; and that this remarkable acceleration in the sinking of the cor-
puscles is connected with their increasing aggregation, appeared from the
fact that their rapidity of sinking was increased by increasing their aggre-
gation, though the means used did not attenuate the blood; and prevented
or even reversed by destroying the aggregation, though by means which
made the blood much thinner and lighter."—P. 41, *Note* xxiii.

In connexion with this subject, it may not be superfluous to notice that
the buffy coat, although so frequently an accompaniment of inflammation,
is not to be regarded as an invariable sign of that state; thus it occurs
regularly in the blood of the horse, and also, as it is well known, in the
advanced state of pregnancy. In these instances there is an excess of
fibrin, and it is probable that this circumstance may, as the majority of
writers suppose, favour the formation of the buffy coat. It may, also, be as
well to state that the peculiar piling together of the red corpuscles is not
confined to the coagulating process, having been observed by several
microscopists to supervene in the small vessels of inflamed parts, producing
an appearance in the stagnant blood, as if the corpuscles were fused toge-
ther, and unless the circulation is restored to its normal state, doubtless
influencing, in an important manner, the subsequent phenomena.

There is no part of these works which may be perused with more advan-
tage than that which treats of the influence of faintness on the process of
coagulation, and of the principles that should be observed in the treatment
of hæmorrhage. It seems that Hewson was led to investigate this subject

by an observation of Dr. Hunter to the effect, that the faintness which comes on after hæmorrhage, instead of alarming the bystanders, and inducing them to support the patient by stimuli and cordials, " should be looked upon as salutary, as it seems to be the method Nature takes to give the blood time to coagulate."

Suspecting that the disposition to coagulate was increased in those cases where the vital powers were weakened, the author performed the following conclusive experiment:—" Believing it would be sufficient for this purpose to attend to the properties of the blood, as it flows at different times from an animal that is bleeding to death, I therefore went to the markets, and attended the killing of sheep ; and having received the blood into cups, I found my notion verified. For I observed, that the blood which came from the vessels immediately on withdrawing the knife was about two minutes in beginning to coagulate ; and that the blood taken later, or as the animal became weaker, coagulated in less and less time ; till at last, when the animal became very weak, the blood, though quite fluid as it came from the vessels, yet had hardly been received into the cup before it congealed. I have also repeated the experiment, by receiving blood into different cups at different times, whilst the animal was bleeding to death ; and though the time taken up in killing the animal was not commonly more than two minutes, yet I observed, on comparing the cups, that the blood which issued last coagulated first."—*L. c.*, p. 46.

The truth of this conclusion, shaken for a time by the experiments of the late Mr. Hey, was fully established by the valuable researches of Mr. Thackrah ; and must ever be regarded, in respect to the means of suppressing hæmorrhage, as one of the most fundamental principles connected with the blood. Although so much has been since written on this subject, the admirable observations of Hewson leave little to be desired.

" As hæmorrhages," he says, " seem to be stopped, partly by a contraction of the bleeding orifices, and partly by the coagulation of the blood, and as the disposition of the blood to coagulate is increased by weakening the body, and likewise the contraction of the bleeding orifices is promoted by the same means, it is therefore evident that the medicines to be used should be such as cool the body, and lessen the force of the circulation ; and experience teaches us, that such are the most efficacious. It likewise shows that all agitation of mind and all bodily motion should as much as possible be prevented ; because they increase the force of the circulation, and are thence unfavourable to the stopping of the hæmorrhage. But that languor and faintness being favourable to the coagulation of the blood, and to the contraction of the bleeding orifices, should not be counteracted by stimulating medicines, but on the contrary, should be encouraged. And as evacuations weaken the body more when they are sudden, we see a reason why blood-letting should be advisable in hæmorrhages, and why a large orifice should be preferable to a small one, when we want to produce that languor or faintness, or that weak action of the vessels, so useful for the stopping of the hæmorrhage." P. 77.

There is an interesting point connected with the coagulation of the blood ; namely, that the process is retarded or entirely prevented, so long as the blood is in contact with the living tissues ; not merely with the blood-vessels, as where Hewson tied up the jugular vein of a dog and found but a very slight coagulum at the end of two hours and a quarter ; but even occasionally in cases of extravasation. Thus, Mr. Gulliver mentions

the case of a soldier, who had received a contusion in his loins, and in which five ounces of blood, evidently effused at the time of the accident, was let out twenty-eight days afterwards and found to be as liquid as if just drawn from a vein, though it coagulated in a cup in less than thirty minutes. The experience of most observers and practitioners must have furnished similar instances.

The authority of Mr. Hunter is so influential in all points relating to the blood, that it is particularly necessary to correct any errors into which he may have fallen; we therefore would call the attention of our readers to the following observations of Mr. Gulliver, relative to a point of some physiological interest.

"The causes usually given, on the authority of Mr. Hunter, as altogether destroying the coagulable property of blood and the contractility of muscle, are some of them so doubtful that they all require to be examined anew. Thus, in a man killed by lightning, Dr. Davy observed some soft coagulum in the heart, and that the fingers were rigid, although the examination was not made until the body was rather advanced in putrefaction. Sir Charles Scudamore invariably found the blood coagulated as usual in animals killed by electricity. Sir B. Brodie found that the irritability of the muscular fibre was not destroyed in a guinea-pig which had been instantly killed by an electric shock.

"Dr. Andrew Smith commonly saw coagulated blood in the hearts of antelopes run down by dogs. In a hunted hare Dr. Davy saw, he informs me, some coagulated blood. So did Lin one that had been run for thirty-five minutes and then killed by the Windsor harriers. * * * Finally, as to a blow on the stomach: In a cat killed by a kick, which ruptured the stomach and liver, I found coagulated blood in the heart, and the limbs rigid, seventeen hours after death."—P. 21.

We proceed to notice that constituent of the blood, which, since the invention of the microscope, has ever been a favourite branch of research, and to which a large part of Hewson's writings is devoted; we allude to the colouring matter, composed of the red corpuscles. Discovered originally by Malpighi, and affirmed erroneously by Leeuwenhoek, to be globular, the red corpuscles were first demonstrated to be flattened discs by Hewson. The method by which he ascertained this fact evinces his usual tact and discrimination: being convinced that former observers had failed to detect the true figure of these bodies in consequence of their being so much crowded together, that the blood, when viewed through the microscope, appears a confused mass, it occurred to him to dilute it with serum, in which the discs remain unaltered. In making this observation, it is necessary, as Mr. Gulliver points out, to examine the corpuscles in their own serum; for so subtle are the influences operating on them, that it may be difficult to distinguish correctly their outline in the serum of another animal, which is apt to cause them to aggregate into clumps, as when the serum of the horse is added to the blood of other mammals, and, in consequence, as it would seem, of some difference as to the amount of saline matter.

It is well known that whilst in mammalia and man the red corpuscles are circular and biconcave, in the oviparous vertebrata they are elliptical and bi-convex; there are, however, some remarkable exceptions to this general principle, for in the camelidæ among mammals the corpuscles are *oval,* whilst in cyclostomatous fishes and amphioxus, the discs are circular;

but in both of these instances there is no deviation as to structure, the oval corpuscles of the camel, for example, agreeing with those of other mammalia in having no nucleus (Gulliver), whilst those of the lamprey have that characteristic of the oviparous vertebrata (Wharton Jones).

The question relating to the organisation of the red discs, for that they are organised bodies has long been known in a general way, and has been specially demonstrated in late years, requires that we should refer to the first formation or development of the corpuscles ; a subject minutely examined by Hewson, and which has subsequently received much attention, especially in the elaborate memoirs of Mr. Wharton Jones, lately published in the Philosophical Transactions, entitled " The Blood-corpuscle in its different phases of Development in the Animal Series." The fully-formed red corpuscle consists, according to the best observers, of a colourless envelope or vesicle, and of coloured contents ; in the oviparous vertebrata, but not in mammals or man, there is a nucleus, which is insoluble in water or acetic acid. Hewson, it is well known, confidently contended for the existence of a nucleus in mammalia ; this opinion is strongly expressed in the following passage :—" From the greater thickness of the vesicles in the human subject, and from their being less transparant when made spherical by the addition of water, and likewise from their being so much smaller than those of fish or frogs, it is more difficult to get a sight of the middle particle, rolling from side to side in the vesicle, which is become round ; but with a strong light, and a deep magnifier, I have distinctly seen it in the human subject, as well as in the frog, toad, and snake."—P. 224. He further affirmed that the nucleus is white, and the vesicle red.

Although, as we have stated above, the nucleus is apparently wanting in mammalia, yet it was necessary to state Hewson's opinion, because it is intimately connected with the celebrated theory he so strenuously advocated respecting the formation of the red particle. This theory briefly stated is, that the red corpuscles are formed by the lymphatic system and its appendages, consisting, according to the author, of " the lymphatic vessels, lymphatic glands, the thymus, and the spleen :" of these organs, the lymphatic glands and the thymus, so long as it persists, form the white nuclei or " central particles," as Hewson terms them, whilst the lymphatic vessels and the spleen form the red vesicles.[*] No one who has not carefully considered the important body of evidence adduced by Hewson in support of his doctrine, or who is unacquainted with the minute anatomy of the present day, is qualified to pronounce an opinion upon its value ; and no one, we may confidently affirm, who has thus studied his profound researches, whatever may be the conclusion at which he may arrive as to the particular fact of the formation of the red corpuscle, can rise from their perusal without feelings of admiration for their author, and of surprise that he should on so many points have closely approached some of the deepest truths of structural anatomy. Our limits will, however, only allow us to make a few extracts. Hewson proved that the lymphatic

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[*] Hewson erroneously supposed that the seat of colour was in the envelope of the red corpuscles, and this mistake has been repeated by some writers of the present day.

glands are secreting organs, and, in the following paragraph, has indicated their true structure, lately more precisely demonstrated by one of the most successful observers of the present day, Mr. Goodsir.

"The arteries and veins are principally spread on the coats of the lymphatic vessels, so that we here find the requisites to form a lymphatic gland; for as we prove that many of the lymphatic glands in the human body are no more than a congeries of arteries, veins, nerves, and lymphatic vessels convoluted, it is probable that all lymphatic glands may be formed in the same manner; so, perhaps, it may be the same thing in nature, or the same purposes of the animal economy may be equally well answered, whether the parts composing a gland (viz. arteries, veins, nerves, and lymphatic vessels) be circumscribed in a proper membrane, or spread over a large surface. This, perhaps, will be more fully proved by some experiments and observations which I shall hereafter publish on the minute structure of glands."—*L. c.* p. 251.

It is Mr. Falconar, the editor of Hewson's posthumous works, who is here speaking for his friend; unhappily he did not live to fulfil this promise, having died very shortly afterwards.

The peculiar secretion of the lymphatic glands, consisting of the now well-known lymph-corpuscles, is thus described:

"On cutting into a fresh lymphatic gland we find it contains a thickish, white, milky fluid. Then if we carefully wipe or wash this fluid from any part of the cut surface, and examine it attentively in the miscroscope, we observe an almost infinite number of small cells, not such as have been before described, or that have been supposed to exist in the lymphatic glands, but others too small to become visible to the naked eye."—P. 251.

They are further on spoken of as "small, white, solid particles;" and the lymphatic vessels are said to be analogous to the excretory ducts of other glands, the proof being that, if a ligature be made on the lymphatic vessel coming from a gland, a fluid is found of the same kind as that contained in the gland itself. But other and more direct indications are adduced: thus, it is repeatedly asserted that red corpuscles were seen in the fluid taken from the lymphatic vessels after they had passed through the glands; that when a ligature had been applied around the vessels of the spleen, in an ox first killed, "the lymphatic vessels soon became turgid, and were distinctly seen filled with a red fluid," and on diluting some of this fluid with a weak solution of Glauber's salts, exactly the same appearances were exhibited as those seen on similarly examining the blood. —P. 272. An important fact corroborative of Hewson's theory, may be here adduced; it is that the chyle unquestionably acquires its peculiar corpuscles as it traverses the mesenteric absorbent vessels and especially the glands; so that either these lacteal vessels and glands must be the formative organs of the chyle-corpuscles, which are on the average somewhat smaller than the red discs (their diameter being about 1-4600 of an inch;) or these corpuscles must be the result of certain molecular changes accomplished by the chyle itself.

Although the experiments which are affirmed to prove the existence of red corpuscles in the lymphatics, are not free from objection; and may in part be explained by the circumstance first noticed by Mr. Lane, that in opening the absorbents, some small blood-vessels are wounded and so allow their red discs to become mixed with the lymph; still the fact contended for by Hewson has been confirmed by too many accurate observers to be

any longer a matter of doubt. The principal evidence hitherto obtained on this point is thus summed up in Mr. Gulliver's notes : .

"Red corpuscles are certainly sometimes found in the lymphatic ·vessels, and generally in those of the spleen of the horse and ox; but it would appear that the reddish colour of the splenic lymph is not constant. Mr. Lane found the ruddy colour of the horse's chyle due to the presence of red corpuscles; and he and Mr. Ancell observed imperfect blood-corpuscles, and attributed the rose colour of the lymph to them, in the large lymphatic vessels. The thoracic duct of the horse often appears as a coloured tube from the number of these corpuscles in the chyle, which, as described in the Appendix to the English edition of Gerber's 'Anatomy,' p. 93, I have generally found to be smaller, more irregular and less perfect in shape, than the red corpuscles in the blood ; and the same observation is applicable to the red corpuscles in the splenic lymph of this animal. Dr. Simon's observations on red corpuscles in the thoracic duct of the rabbit and the horse, are to the same effect. Schultz and Gurlt also noticed the chyle of a reddish colour from the presence of blood-corpuscles, of which they suppose, with Simon, the formation to begin in chyle. The transition of the corpuscle of the chyle or lymph into the red corpuscle of the blood seems now to be commonly admitted in Germany. Dr. Davy informs me that he found a small portion of red crassamentum in the thoracic duct of a man who died suddenly of apoplexy."—*Note* cxli., p. 276.

Hewson's theory, as he himself readily perceived, is open to the objection that the spleen may be removed in a living animal without preventing the formation of the red particles. His answer is, that this organ is not the only one provided for the formation of the vesicular portion, the lymphatic vessels being endowed with the same power;—" Nature has given the spleen as an auxiliary to the lymphatic system, in order to the more commodiously, expeditiously, and completely forming the red part of the blood." In the same way with respect to the thymus, which exists only in the early period of life, although its agency is at that active time required " for the purpose of forming more of the central particles of the blood than could have been made by the lymphatic glands alone," yet subsequently when the demand is less, the thymus can be dispensed with, the absorbent glands being then competent to supply the central nuclei. Mr. Gulliver justly observes, in reference to this latter subject, that Hewson's observation to the effect " that the lymphatic vessels of the thymus do carry a fluid, however it may get into them, like that of the thymus, and pervaded by the same globules," has never been refuted ; and he quotes the authority of Sir A. Cooper, that the lymphatic vessels are the absorbent ducts of the gland, and the carriers of its fluid into the veins of the lower part of the neck.

It will not be superfluous to remark in this place, that this, the most profound and important of all Hewson's researches, could not be properly appreciated at the time when it was announced : it must be viewed in connexion with the cell-theory, with which the formation of the " central particles" (nuclei) and of the enveloping " vesicles" (cells) has a clear and distinct relation.

The minute and elaborate microscopic observations of Mr. Wharton Jones, which immediately bear upon the question we are considering, are worthy of the most careful attention. The object of these memoirs is to prove that the red corpuscle passes through several successive stages in its deve-

success, and domestic amities with felicity. The theatre in which he delivered his lectures and expounded his doctrines was crowded with men of science, as well as with pupils, to listen to a youth grown sage by experimental researches."—(P. xviii.) But this happiness was soon to end. He was seized with a fever, occasioned by a wound received in dissection, which proved fatal on May-day, 1774, after a short illness, in the thirty-fifth year of his age.

He was buried at St. Martin's-in-the-Fields; but the only record of this admirable physiologist, whose life thus fell a sacrifice to his unceasing zeal for the advancement of science, is a meagre entry in the parish register. Surely some more honourable memorial should hand down to posterity the name and sterling merits of one of the brightest ornaments our profession has ever produced. If the proposition were once judiciously made, we have no doubt funds would readily be found to erect a tablet to the memory of a man equally esteemed in private and in public life.

Subsequently to the death of her husband, Mrs. Hewson continued to enjoy the esteem of Dr. Franklin, the friend of her youth, of which we have a pleasing proof in the following letter, addressed to her from Passy, and bearing date, January 27th, 1783.

" In looking forward, twenty-five years seem a long period, but in looking back, how short ! Could you imagine, that it is now full a quarter of a century since we were first acquainted ? It was in 1757. During the greatest part of the time I lived in the house with my dear deceased friend, your mother; of course you and I conversed with each other much and often. It is to all our honours, that in all that time we never had among us the smallest misunderstanding. Our friendship has been all clear sunshine, without the least cloud in its hemisphere. Let me conclude by saying to you, what I have had too frequent occasions to say to my other remaining old friends. The fewer we become, the more let us love one another."—*Introd.* p. xx.

After Mrs. Hewson lost her mother, and in compliance with the frequently expressed wish of Franklin that she should become his neighbour in America, she went with her children to Philadelphia, and died in 1795, leaving two sons and a daughter. The second and surviving son, Dr. Thomas Tickell Hewson, is, according to inquiries lately made by Mr. Gulliver, still alive, and is the President of the College of Physicians at Philadelphia.

Having given this brief biographical notice, which we are assured our readers will agree with us was a proper tribute to the memory of such a man as Hewson, we proceed to the consideration of his scientific labours, the principal of which relate, as it is well known, to the blood. In order to do justice to these researches, it will be necessary to enter somewhat fully into the properties of the circulating fluid : we trust, however, that this detail may not be devoid of interest in another point of view, as the volume before us is enriched by copious notes, in which the judicious editor has brought together a large amount of important matter, collected from various sources, his own inquiries forming a very valuable portion of these additions.

The very interesting and comprehensive introduction of Mr. Gulliver, in which he traces the successive progress of discovery in relation to the blood, shows how much we are indebted to Hewson for an exact know-

ledge of many of the fundamental qualities of the circulating fluid ; and on how many points he had anticipated the results of modern discovery. It is, indeed, true in this, as in so many other instances, that several facts of great importance had been discovered by earlier observers ; but then, owing, partly, to the false hypotheses with which they were encumbered ; and partly to the neglect and errors of subsequent writers, the whole history of the constitution of the blood was involved in great confusion when our author commenced his " Experimental Inquiries." Upon this point Mr. Gulliver justly remarks that—

"In considering the labours of Hewson in connection with the facts observed and the errors held by his predecessors and contemporaries, it must be recollected that the speculations connected with Leeuwenhoek's microscopical researches for many years supplanted accurate experimental inquiries into the properties of the blood ; so that the fibrin was either forgotten or confounded with the serum, and a fanciful importance was given to the red corpuscles. When the errors consequent on this state of things began to wane, the blood sunk into neglect. Accordingly, the just observations of Malpighi, Lower, and Borelli, were lost for the greater part of a century, while the coagulation of the blood was ascribed to a mere cohesion or running together of the red corpuscles, and the formation of fibrinous clots to a change in the serum. These opinions were held in Britain by the best writers to the year 1760, and on the Continent by the most distinguished physiologists, as Haller and Marherr, up to or even beyond 1771, the date of the first edition of Hewson's 'Inquiry into the Properties of the Blood.' But there were exceptions. The knowledge of Petit, Quesnay, Senac, and Gaubius, was unquestionably in advance of that current in their day ; yet they added but little to the facts of the older observers, so vaguely discussed by Haller, so ably used in the masterly memoir of Petit ; and some of the opinions set forth by Quesnay and Senac, partook of that general crudity which proved how necessary it was that the properties of the blood should be studied anew by the experimental method."— *Introd.* p. xi.

It would be unjust towards a neglected but ingenious observer, Dr. Richard Davies, if we did not state that, in the opinion both of Dr. Davy and of Mr. Gulliver, to this writer, who preceded Hewson by about twenty years, belongs the merit of clearly apprehending the true method of studying the blood, namely, by experimental research. His " Essay," considered as a demonstration of the distinctive characters of the three proximate principles of the blood, is also, we are informed by the same authority, " admirably decisive."

Although the independent existence of these three constituents, the fibrin, the red corpuscles, and the serum, and their relation to the process of coagulation, are for the most part well known, yet, in order to guard against the errors which are, even in the present day, from time to time, springing up ; and especially for the purpose of adducing a few of those simple but convincing experiments which are a model in this field of research, we quote the following from the first part of the " Experimental Inquiries." Alluding to the inflammatory crust, and to the opinion entertained by some authorities that it is formed by the serum, Mr. Hewson remarks :

" But that it is formed by the coagulable lymph alone, after the red particles have subsided, appears from the following experiments :

"*Experiment* 11.—In the month of June, when the thermometer in the shade stood at 67°, I bled a man who had laboured under a phthisis pulmonalis for

some months, and at that time complained of a pain in his side. The blood, though it came out in a small stream, yet flowed with such velocity, that it soon filled the basin. After tying up his arm I attended to the blood, and observed that the surface became transparent, and that the transparency gradually went deeper and deeper, the blood being still fluid. I likewise observed that the coagulation first began on the surface, where it was in contact with the air, and formed a thin pellicle ; this I removed, and saw that it was soon succeeded by a second. I then took up a part of the clear liquor with a wet teaspoon and put it into a phial with an equal quantity of water; a second portion I kept in the teaspoon ; and I found afterwards that they both jellied or coagulated, as did also the surface of the crassamentum, making a thick crust. On pressing with my finger that portion which was in the teaspoon, I found it contained a little serum.

" From this experiment, it is evident, that the substance which formed the size was fluid after it was taken from the vein, and coagulated when exposed to the air; and as this is a property of the coagulable lymph alone, and not of the serum, there can be no doubt that the size was formed of the lymph."—P. 32.

In order further to demonstrate the same fact, Hewson performed many interesting experiments, in which, having observed that neutral salts have the power of preventing the process of coagulation, he availed himself of this circumstance to obtain the fibrin or coagulable lymph, as he terms it, separately from the red corpuscles.

" In these mixtures of the blood with neutral salts, the red particles readily subside, (especially if human blood be used,) and the surface of the mixture becomes clear and colourless ; and being poured off from the red part, it is found to contain the coagulable lymph, which can be separated by the addition of water."— P. 12.

After all these, and a great number of other exact experiments, it is strange that any doubt should subsequently have arisen as to which was the coagulable matter of the blood. We need, however, scarcely remind our readers, that Sir E. Home and Mr. Bauer, reviving what Mr. Gulliver calls the old and discarded hypothesis of Sydenham, contended that the fibrin, instead of being what Hewson had so distinctly proved it to be, an independent constituent, was formed in the act of coagulation by the colourless matter of the red corpuscles. This error, which received little or no sanction from English physiologists, became so prevalent on the Continent, that Professor Müller was deemed to have rendered good service for proving, partly, by the very ingenious experiment of mechanically separating by filtration the red corpuscles from the fibrin in the blood of the frog ; and, partly, by repeating some of Hewson's experiments with the neutral salts, that the coagulating material is altogether distinct from the colouring substance. Another theory has also been lately advocated, to the effect that both the fibrin and the albumen of the serum are contained within the pale or colourless corpuscles of the blood ; a position which we believe to be utterly untenable. Whether it be true, as some physiologists contend, that these corpuscles elaborate the plastic element or fibrin ; or that this change is effected by the red corpuscles; or that the fibrin is formed in some other and at present unknown way, which, considering the chemical relations of that substance and of albumen, may be regarded as the most probable explanation ; however this may be, there can, we think, be no reasonable ground for doubting that, once formed, the

fibrin exists as an independent principle, composing, in conjunction with the serum, the fluid portion of the circulating blood, or liquor sanguinis.

A point on which Hewson made many valuable observations, relates to the production of the buffy coat ; and as this is a subject of practical importance, and one, moreover, that has received much elucidation from modern research, we are desirous of stating the results that have been obtained. It is a striking illustration of the accuracy which characterises Hewson's investigations, that he detected one of the most essential changes of buffy blood, namely, its attenuation, and this in opposition to the prevailing opinion.

"How contrary," he says, "to the conclusion, which these experiments lead us to, are the opinions of some medical writers on this subject! How frequently do we find it said, that the blood is thicker in inflammatory disorders, where that size occurs ; and that a large orifice is necessary to let out the vitiated blood! That a large orifice is preferable to a small one in many cases, where such blood is found, I believe to be true ; but that its advantages are owing to its letting out the thickened blood, seems improbable from what we have seen in the experiments above related ; they are perhaps nearer the truth, who attribute it to the suddenness of the evacuation."—P. 40.

He further ascertained the fact, that the red corpuscles sink more rapidly in the liquor sanguinis of buffy blood than in the serum alone ; and, putting these circumstances together, it is not a matter of surprise, that he attributed the formation of the sizy coat to the attenuation of the liquor sanguinis, and to the more ready subsidence of the red corpuscles consequent thereon towards the lower part of the crassamentum.

The application of the microscope has thrown a clearer light upon the phenomenon in question ; and has shown that the peculiar attraction which, under certain circumstances, the red corpuscles have for each other, and in virtue of which they form the well-known piles or rouleaux, plays the most essential part in the formation of the buffy coat. This piling of the red discs, which is one of the most remarkable, and at the same time beautiful, appearances seen on examining a drop of blood,* was evidently known to Hewson ; for he remarks, in arguing for the flat form of the corpuscles, " I have seen them with their sides parallel, like a number of coins laid one against another."—*L. c.*, p. 228.

Dr. Hodgkin and Mr. Lister were the first in the revival of microscopical anatomy, distinctly to describe the disposition just noticed, which takes place in healthy blood during coagulation. But what more particularly concerns the present question is that, in buffy blood, the red corpuscles evince an increased tendency to aggregation ; a fact well known to Hunter, who, in speaking of the blood in inflammation, says, " the red globules become less uniformly diffused, and their attraction to one another becomes

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* The piling of the corpuscles affords to the inexperienced microscopist, the best idea as to how the red colour of the blood is produced ; for it is seen that, when the piles are formed, the so-called red corpuscles, which are, as it is familiarly known, of a pale yellow examined singly, begin from their aggregation to reflect the red ray, and to assume a pinkish tint ; and that where two rouleaus lie across each other, the tint becomes deeper ; till at last, where several piles are heaped together, the ordinary red colour of the blood is produced.

"Take a drop of the blood of an animal that has large particles, as a frog, a fish, or what is still better, of a toad; put this blood on a thin piece of glass, as used in the former experiment, and add to it some water, first one drop, then a second, and a third, and so on, gradually increasing the quantity; and in proportion as water is added, the figure of the particle will be changed from a flat to a spherical shape. When much water is added, the vesicle will by degrees become thinner and more transparent, and will at last be dissolved."—*Hewson*, p. 222.

The latter part of this account contains an error, for the red corpuscles are not actually dissolved by water; they are thereby only deprived of their colouring matter, a fact first observed by Dr. Young. The effects produced by saline solutions are thus accurately noticed :—

"If a saturated solution of any of the common neutral salts be mixed with fresh blood, and the globules (as they have been called, but which, for the future, I shall call flat vesicles) be then examined in a microscope, the salt will be found to have contracted or shrivelled the vesicles, so that they appear quite solid, the vesicular substance being closely applied all round the central piece. In proportion as the solution of salt is diluted with water, it has less effect, and when diluted with six, eight, ten or twelve times its quantity of water, it produces no change in the figure of the vesicles, whose flat shape can then be seen, even more distinctly than when mixed with the serum itself."—*L. c.*, p. 229.

A little consideration is sufficient to show that these experiments, which by their delicacy rival some of the more minute manipulations of chemistry, contain the germ of the important discovery subsequently made by Dutrochet as to the absorbing powers of organic membrane; and they also afford the best proof that can be adduced to prove the correctness of the doctrine now universally admitted, that the blood-corpuscles are in fact floating cells. It is true that Hewson himself did not draw any such brilliant inferences from his precise and often-repeated researches; what he might have done, if his life had been longer spared, it would be now vain to speculate. But although these great results escaped him, this profound physiologist firmly established a principle in the physiology of the blood, of which the importance is only now imperfectly comprehended: we allude to the fact that the normal figure of the red corpuscles is preserved by the serum, or, to speak more accurately, by the salts held in solution in that fluid. In answer to the question—Whence is it that the serum has the property of preserving the flat form of the blood-discs? Hewson replies, "it is principally by the salts of the serum that this effect is produced, as is proved by adding a small quantity of any neutral salt to water, when the water is no longer capable of dissolving those particles, nor does it alter their shape when the salt is used in a certain proportion."—P. 229.

All these remarks show how powerfully the red corpuscles must be affected, and especially in disease, by the qualities of the liquid vehicle in which they are habitually placed; not merely as regards the influence exerted upon their colour by the salts of the serum, but likewise with respect to their form, and those other physical properties, by which their attraction for each other is, doubtless, greatly modified.

Our notice of these "Experimental Inquiries" has already extended so far, that we have only space for one or two passing allusions to Hewson's description of the Lymphatic System, which, although containing, mixed

by an observation of Dr. Hunter to the effect, that the faintness which comes on after hæmorrhage, instead of alarming the bystanders, and inducing them to support the patient by stimuli and cordials, " should be looked upon as salutary, as it seems to be the method Nature takes to give the blood time to coagulate."

Suspecting that the disposition to coagulate was increased in those cases where the vital powers were weakened, the author performed the following conclusive experiment:—" Believing it would be sufficient for this purpose to attend to the properties of the blood, as it flows at different times from an animal that is bleeding to death, I therefore went to the markets, and attended the killing of sheep ; and having received the blood into cups, I found my notion verified. For I observed, that the blood which came from the vessels immediately on withdrawing the knife was about two minutes in beginning to coagulate ; and that the blood taken later, or as the animal became weaker, coagulated in less and less time ; till at last, when the animal became very weak, the blood, though quite fluid as it came from the vessels, yet had hardly been received into the cup before it congealed. I have also repeated the experiment, by receiving blood into different cups at different times, whilst the animal was bleeding to death ; and though the time taken up in killing the animal was not commonly more than two minutes, yet I observed, on comparing the cups, that the blood which issued last coagulated first."—*L. c.*, p. 46.

The truth of this conclusion, shaken for a time by the experiments of the late Mr. Hey, was fully established by the valuable researches of Mr. Thackrah ; and must ever be regarded, in respect to the means of suppressing hæmorrhage, as one of the most fundamental principles connected with the blood. Although so much has been since written on this subject, the admirable observations of Hewson leave little to be desired.

" As hæmorrhages," he says, " seem to be stopped, partly by a contraction of the bleeding orifices, and partly by the coagulation of the blood, and as the disposition of the blood to coagulate is increased by weakening the body, and likewise the contraction of the bleeding orifices is promoted by the same means, it is therefore evident that the medicines to be used should be such as cool the body, and lessen the force of the circulation; and experience teaches us, that such are the most efficacious. It likewise shows that all agitation of mind and all bodily motion should as much as possible be prevented; because they increase the force of the circulation, and are thence unfavourable to the stopping of the hæmorrhage. But that languor and faintness being favourable to the coagulation of the blood, and to the contraction of the bleeding orifices, should not be counteracted by stimulating medicines, but on the contrary, should be encouraged. And as evacuations weaken the body more when they are sudden, we see a reason why blood-letting should be advisable in hæmorrhages, and why a large orifice should be preferable to a small one, when we want to produce that languor or faintness, or that weak action of the vessels, so useful for the stopping of the hæmorrhage." P. 77.

There is an interesting point connected with the coagulation of the blood ; namely, that the process is retarded or entirely prevented, so long as the blood is in contact with the living tissues ; not merely with the blood-vessels, as where Hewson tied up the jugular vein of a dog and found but a very slight coagulum at the end of two hours and a quarter ; but even occasionally in cases of extravasation. Thus, Mr. Gulliver mentions

the case of a soldier, who had received a contusion in his loins, and in which five ounces of blood, evidently effused at the time of the accident, was let out twenty-eight days afterwards and found to be as liquid as if just drawn from a vein, though it coagulated in a cup in less than thirty minutes. The experience of most observers and practitioners must have furnished similar instances.

The authority of Mr. Hunter is so influential in all points relating to the blood, that it is particularly necessary to correct any errors into which he may have fallen; we therefore would call the attention of our readers to the following observations of Mr. Gulliver, relative to a point of some physiological interest.

" The causes usually given, on the authority of Mr. Hunter, as altogether destroying the coagulable property of blood and the contractility of muscle, are some of them so doubtful that they all require to be examined anew. Thus, in a man killed by lightning, Dr. Davy observed some soft coagulum in the heart, and that the fingers were rigid, although the examination was not made until the body was rather advanced in putrefaction. Sir Charles Scudamore invariably found the blood coagulated as usual in animals killed by electricity. Sir B. Brodie found that the irritability of the muscular fibre was not destroyed in a guinea-pig which had been instantly killed by an electric shock.

" Dr. Andrew Smith commonly saw coagulated blood in the hearts of antelopes run down by dogs. In a hunted hare Dr. Davy saw, he informs me, some co-agulated blood. So did I in one that had been run for thirty-five minutes and then killed by the Windsor harriers. *   *   * Finally, as to a blow on the stomach: In a cat killed by a kick, which ruptured the stomach and liver, I found coagulated blood in the heart, and the limbs rigid, seventeen hours after death."—P. 21.

We proceed to notice that constituent of the blood, which, since the invention of the microscope, has ever been a favourite branch of research, and to which a large part of Hewson's writings is devoted; we allude to the colouring matter, composed of the red corpuscles. Discovered origin-ally by Malpighi, and affirmed erroneously by Leeuwenhoek, to be globu-lar, the red corpuscles were first demonstrated to be flattened discs by Hewson. The method by which he ascertained this fact evinces his usual tact and discrimination: being convinced that former observers had failed to detect the true figure of these bodies in consequence of their being so much crowded together, that the blood, when viewed through the micros-cope, appears a confused mass, it occurred to him to dilute it with serum, in which the discs remain unaltered. In making this observation, it is necessary, as Mr. Gulliver points out, to examine the corpuscles in their own serum; for so subtle are the influences operating on them, that it may be difficult to distinguish correctly their outline in the serum of another animal, which is apt to cause them to aggregate into clumps, as when the serum of the horse is added to the blood of other mammals, and, in conse-quence, as it would seem, of some difference as to the amount of saline matter.

It is well known that whilst in mammalia and man the red corpuscles are circular and biconcave, in the oviparous vertebrata they are elliptical and bi-convex; there are, however, some remarkable exceptions to this general principle, for in the camelidæ among mammals the corpuscles are *oval,* whilst in cyclostomatous fishes and amphioxus, the discs are circular;

but in both of these instances there is no deviation as to structure, the oval corpuscles of the camel, for example, agreeing with those of other mammalia in having no nucleus (Gulliver), whilst those of the lamprey have that characteristic of the oviparous vertebrata (Wharton Jones).

The question relating to the organisation of the red discs, for that they are organised bodies has long been known in a general way, and has been specially demonstrated in late years, requires that we should refer to the first formation or development of the corpuscles ; a subject minutely examined by Hewson, and which has subsequently received much attention, especially in the elaborate memoirs of Mr. Wharton Jones, lately published in the Philosophical Transactions, entitled " The Blood-corpuscle in its different phases of Development in the Animal Series." The fully-formed red corpuscle consists, according to the best observers, of a colourless envelope or vesicle, and of coloured contents ; in the oviparous vertebrata, but not in mammals or man, there is a nucleus, which is insoluble in water or acetic acid. Hewson, it is well known, confidently contended for the existence of a nucleus in mammalia ; this opinion is strongly expressed in the following passage :—" From the greater thickness of the vesicles in the human subject, and from their being less transparant when made spherical by the addition of water, and likewise from their being so much smaller than those of fish or frogs, it is more difficult to get a sight of the middle particle, rolling from side to side in the vesicle, which is become round ; but with a strong light, and a deep magnifier, I have distinctly seen it in the human subject, as well as in the frog, toad, and snake."—P. 224. He further affirmed that the nucleus is white, and the vesicle red.

Although, as we have stated above, the nucleus is apparently wanting in mammalia, yet it was necessary to state Hewson's opinion, because it is intimately connected with the celebrated theory he so strenuously advocated respecting the formation of the red particle. This theory briefly stated is, that the red corpuscles are formed by the lymphatic system and its appendages, consisting, according to the author, of " the lymphatic vessels, lymphatic glands, the thymus, and the spleen :" of these organs, the lymphatic glands and the thymus, so long as it persists, form the white nuclei or " central particles," as Hewson terms them, whilst the lymphatic vessels and the spleen form the red vesicles.* No one who has not carefully considered the important body of evidence adduced by Hewson in support of his doctrine, or who is unacquainted with the minute anatomy of the present day, is qualified to pronounce an opinion upon its value ; and no one, we may confidently affirm, who has thus studied his profound researches, whatever may be the conclusion at which he may arrive as to the particular fact of the formation of the red corpuscle, can rise from their perusal without feelings of admiration for their author, and of surprise that he should on so many points have closely approached some of the deepest truths of structural anatomy. Our limits will, however, only allow us to make a few extracts. Hewson proved that the lymphatic

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* Hewson erroneously supposed that the seat of colour was in the envelope of the red corpuscles, and this mistake has been repeated by some writers of the present day.

glands are secreting organs, and, in the following paragraph, has indicated their true structure, lately more precisely demonstrated by one of the most successful observers of the present day, Mr. Goodsir.

"The arteries and veins are principally spread on the coats of the lymphatic vessels, so that we here find the requisites to form a lymphatic gland; for as we prove that many of the lymphatic glands in the human body are no more than a congeries of arteries, veins, nerves, and lymphatic vessels convoluted, it is probable that all lymphatic glands may be formed in the same manner; so, perhaps, it may be the same thing in nature, or the same purposes of the animal economy may be equally well answered, whether the parts composing a gland (viz. arteries, veins, nerves, and lymphatic vessels) be circumscribed in a proper membrane, or spread over a large surface. This, perhaps, will be more fully proved by some experiments and observations which I shall hereafter publish on the minute structure of glands."—*L. c.* p. 251.

It is Mr. Falconar, the editor of Hewson's posthumous works, who is here speaking for his friend; unhappily he did not live to fulfil this promise, having died very shortly afterwards.

The peculiar secretion of the lymphatic glands, consisting of the now well-known lymph-corpuscles, is thus described:

"On cutting into a fresh lymphatic gland we find it contains a thickish, white, milky fluid. Then if we carefully wipe or wash this fluid from any part of the cut surface, and examine it attentively in the miscroscope, we observe an almost infinite number of small cells, not such as have been before described, or that have been supposed to exist in the lymphatic glands, but others too small to become visible to the naked eye."—P. 251.

They are further on spoken of as " small, white, solid particles ;" and the lymphatic vessels are said to be analogous to the excretory ducts of other glands, the proof being that, if a ligature be made on the lymphatic vessel coming from a gland, a fluid is found of the same kind as that contained in the gland itself. But other and more direct indications are adduced: thus, it is repeatedly asserted that red corpuscles were seen in the fluid taken from the lymphatic vessels after they had passed through the glands; that when a ligature had been applied around the vessels of the spleen, in an ox first killed, " the lymphatic vessels soon became turgid, and were distinctly seen filled with a red fluid," and on diluting some of this fluid with a weak solution of Glauber's salts, exactly the same appearances were exhibited as those seen on similarly examining the blood. —P. 272. An important fact corroborative of Hewson's theory, may be here adduced ; it is that the chyle unquestionably acquires its peculiar corpuscles as it traverses the mesenteric absorbent vessels and especially the glands ; so that either these lacteal vessels and glands must be the formative organs of the chyle-corpuscles, which are on the average somewhat smaller than the red discs (their diameter being about 1-4600 of an inch ;) or these corpuscles must be the result of certain molecular changes accomplished by the chyle itself.

Although the experiments which are affirmed to prove the existence of red corpuscles in the lymphatics, are not free from objection ; and may in part be explained by the circumstance first noticed by Mr. Lane, that in opening the absorbents, some small blood-vessels are wounded and so allow their red discs to become mixed with the lymph ; still the fact contended for by Hewson has been confirmed by too many accurate observers to be

any longer a matter of doubt. The principal evidence hitherto obtained on this point is thus summed up in Mr. Gulliver's notes :

"Red corpuscles are certainly sometimes found in the lymphatic vessels, and generally in those of the spleen of the horse and ox; but it would appear that the reddish colour of the splenic lymph is not constant. Mr. Lane found the ruddy colour of the horse's chyle due to the presence of red corpuscles; and he and Mr. Ancell observed imperfect blood-corpuscles, and attributed the rose-colour of the lymph to them, in the large lymphatic vessels. The thoracic duct of the horse often appears as a coloured tube from the number of these corpuscles in the chyle, which, as described in the Appendix to the English edition of Gerber's 'Anatomy,' p. 93, I have generally found to be smaller, more irregular and less perfect in shape, than the red corpuscles in the blood ; and the same observation is applicable to the red corpuscles in the splenic lymph of this animal. Dr. Simon's observations on red corpuscles in the thoracic duct of the rabbit and the horse, are to the same effect. Schultz and Gurlt also noticed the chyle of a reddish colour from the presence of blood-corpuscles, of which they suppose, with Simon, the formation to begin in chyle. The transition of the corpuscle of the chyle or lymph into the red corpuscle of the blood seems now to be commonly admitted in Germany. Dr. Davy informs me that he found a small portion of red crassamentum in the thoracic duct of a man who died suddenly of apoplexy."—*Note* CXLI., p. 276.

Hewson's theory, as he himself readily perceived, is open to the objection that the spleen may be removed in a living animal without preventing the formation of the red particles. His answer is, that this organ is not the only one provided for the formation of the vesicular portion, the lymphatic vessels being endowed with the same power ;—" Nature has given the spleen as an auxiliary to the lymphatic system, in order to the more commodiously, expeditiously, and completely forming the red part of the blood." In the same way with respect to the thymus, which exists only in the early period of life, although its agency is at that active time required "for the purpose of forming more of the central particles of the blood than could have been made by the lymphatic glands alone," yet subsequently when the demand is less, the thymus can be dispensed with, the absorbent glands being then competent to supply the central nuclei. Mr. Gulliver justly observes, in reference to this latter subject, that Hewson's observation to the effect " that the lymphatic vessels of the thymus do carry a fluid, however it may get into them, like that of the thymus, and pervaded by the same globules," has never been refuted ; and he quotes the authority of Sir A. Cooper, that the lymphatic vessels are the absorbent ducts of the gland, and the carriers of its fluid into the veins of the lower part of the neck.

It will not be superfluous to remark in this place, that this, the most profound and important of all Hewson's researches, could not be properly appreciated at the time when it was announced : it must be viewed in connexion with the cell-theory, with which the formation of the " central particles" (nuclei) and of the enveloping " vesicles" (cells) has a clear and distinct relation.

The minute and elaborate microscopic observations of Mr. Wharton Jones, which immediately bear upon the question we are considering, are worthy of the most careful attention. The object of these memoirs is to prove that the red corpuscle passes through several successive stages in its deve-

lopment before it is fully formed.   In its first and simplest form, the future
red disc exists as a perfectly colourless corpuscle termed " granule blood-
cell," consisting of a vesicle with granular contents, which latter may be
either of a coarse or fine character ; these " granule-cells" have a diameter
in the embryo ox varying from about $\frac{1}{1150}$ to $\frac{1}{1125}$ of an inch ; and in
the adult human body, when distended with water, their diameter is about
$\frac{1}{2400}$ of an inch.   The contained granules are extremely minute, varying
in diameter according to the degree of development from $\frac{1}{13000}$ to $\frac{1}{33500}$ of
an inch, and presenting, as in other similar instances, active molecular
motion : a nucleus may be detected by treating the granule-cell with acetic
acid.   In the second and more advanced stage, distinct nucleated cells ap-
pear, which are at first colourless, but subsequently attain the yellow tint
proper to the fully-formed corpuscles.   Thus, the author recognises two
" phases " or grades of development in oviparous vertebrated animals,
namely, fishes, reptiles, and birds, each phase having two stages ; the pro-
cess of formation may be thus expressed :

First phase, granule-cell { 1st stage, coarsely granular. }
{ 2d stage, finely granular. }

Second phase, nucleated-cell { 1st stage, uncoloured. }
{ 2d stage, coloured. }

The fully-formed blood of the mammifera and man, contains, like the
preceding classes, granule-cells, both coarsely and finely granulated, and
nucleated blood-cells in the uncoloured stage also exist ; it is to these three
forms of cells that the somewhat vague name of " lymph" or " colourless"
corpuscle has been applied.   In mammiferous animals, especially in the
horse and elephant, nucleated blood-cells in the coloured stage, have been
found ; but such corpuscles have not been seen in the fully-formed blood
of man unacted on by re-agents.   One of the most novel views contained
in these memoirs relates, however, to the existence in mammalia and man
of a third and higher phase of development, not possessed by the oviparous
vertebrata—that of the " *cellæform nucleus*," constituting the red corpuscle
of other anatomists, the nature of which will be understood by the follow-
ing explanation.

The author conceives that physiologists, misled by the similarity of
colour, have taken for granted, that the red corpuscle of mammalia is the
exact analogue of the red corpuscle of the oviparous vertebrata ; whilst,
as he contends, it really represents only the *cellæform nucleus* of that
body.

"The view of the nature of the ' red corpuscle' of the fully-formed blood of
Man and the Mammifera to which I refer is this : the ' red corpuscle' of the
fully-formed blood of Man and the Mammifera is the cellæform nucleus of the
nucleated cell set free by the bursting of this cell itself, and become filled and
red by the secretion of globuline and colouring matter into its interior."—*Phil.
Trans.* p. 75.

This explanation of the nature of the red corpuscles in mammals is
thought by Mr. W. Jones to clear up the long-disputed question as to the
existence or non-existence of a nucleus in that class of animals.   He says:

" Physiologists have accordingly supposed that it (namely, the red corpuscle
of mammalia) should contain a nucleus; but though unsuccessful in the attempt
to demonstrate one, they have not altogether ceased to b

an exact analogy between it and the 'red corpuscle' or coloured nucleated blood-cell of the oviparous vertebrata; they have rather had recourse to conjecture to account for the absence of a nucleus."—*L. c.*, p. 74.

In order to form an opinion of the value of this theory, it is necessary carefully to consider the constitution of the blood in the embryo of mammiferous animals and man. It is well known to physiologists that the blood, which at first circulates in the embryo, is colourless, and, which is a most interesting fact, that the blood-corpuscle has at that epoch a nucleus; moreover, there is an abundance of free globules, which are said by some writers to resemble the nuclei of the nucleated corpuscles just noticed. Among these peculiarities of the embryonic blood, the most important is the existence of a nucleated cell; and the questions immediately suggest themselves, as such cells certainly do not exist in the fully-formed blood of the adult, what is their signification, and what becomes of them? These queries have been answered in one sense by that excellent observer, Mr. Gulliver, who considers, as regards the first point, that the nucleated blood-cell of the mammiferous embryo, is the exact analogue of the red corpuscle or coloured nucleated blood-cell of the oviparous vertebrata; whilst, with respect to the second question, he affirms that " in mammals the nucleus of the red blood-corpuscle soon disappears," and in this way the above-noticed nucleated cell is transformed into the non-nucleated red corpuscle of the adult mammals. From what has already been stated, it appears that Mr. W. Jones offers a very different explanation of this admittedly difficult, point of minute anatomy; this writer contending that the nucleated cells burst, the nuclei alone remaining and becoming the red corpuscles of mammalia. In reference to Mr. Gulliver's view of the subject, Mr. Jones observes, with much justice, that " this apology for the absence of a nucleus in the 'red corpuscle' of the fully-formed blood of Man and the Mammifera, would have had weight if the 'red corpuscle' had been an object persistent throughout life, like a limb or an eye, but as it is an object constantly disappearing and being regenerated, we should expect, if it were really a nucleated cell originally, to meet with it in a stage when it does contain a nucleus."—*L. c.*, p. 74.

We cannot quote the reasons adduced by the author in support of his opinions; but it is due to this patient and successful investigator to observe that the facts brought forward have much force, and must form an important element in this question till it is finally settled. Whether his peculiar views of the constitution of the red particles in the fully-formed blood of mammalia be established or not, must very much depend upon the nature of that essential part of the nucleated cell, the nucleus. That this possesses essentially a limiting wall or vesicle, is generally agreed; and thus we have one of the most indispensable conditions, the existence, namely, of an organic membrane, for the production of those endosmotic phenomena attributed by Mr. W. Jones to the so-called cellæform nucleus. In the present aspect of this question, with every inclination to receive with candour the researches of this eminent physiologist, and fully admitting the force of his observations upon the correspondence in size, between the nucleus of the nucleated blood-disc and the red corpuscles of the several mammalia whose blood was examined, we conceive that further researches are required to arrive at a satisfactory conclusion.

We regret that our limits will only allow us to make one or two additional extracts from these important "memoirs." The examination of the invertebrate animals has established the important fact, that, contrary to the opinion of those physiologists who conceive that in these classes the nutritive fluid corresponds to the chyle or lymph of the vertebrata, the blood contains true blood-corpuscles, though not in the same degree of development as in the vertebrate division of the animal kingdom. In the crab and in the invertebrata downwards, so far as the investigation has been carried, granule-cells in both the coarsely and finely granular stages, and also nucleated cells in the uncoloured stage, exist; even a slight appearance of colour is detected in the nucleated cells of the crab and lobster. An interesting fact was ascertained by Professor Graham on analysing some of the corpuscles of the crab; namely, that, although colourless, " they contained a sensible quantity of iron, perhaps as much as red corpuscles;" thus corroborating the conviction now prevalent among physiologists, that the red colour does not depend on the presence of iron, and also supporting the theory of Liebig respecting the part played by the iron of the blood-corpuscles in the development of animal heat. The general conclusions of the author respecting the blood of the invertebrata, when compared with the circulating fluid of the oviparous vertebrata, and the mammifera, are thus expressed :

" In the oviparous Vertebrata, from the Skate upwards, it has been seen that the blood-corpuscle in its different phases of development is essentially similar to that of the Skate. In the Invertebrata, from the Crab down as far as we have gone, it has also been seen that the blood-corpuscle in its different phases of development is essentially similar to that of the Crab. The only difference, therefore, in essential respects, between the blood-corpuscle of the oviparous Vertebrata generally and that of the Invertebrata, is the same as that between the blood-corpuscle of the Skate and Crab, viz. that in the phase of nucleated cell, the latter does not attain to a decidedly coloured stage. In the phase of granule-cell, the blood-corpuscle of the mammifera and that of Invertebrata resemble each other in essential points of structure. In the phase of nucleated cell they also agree in the absence of a decided coloured stage : in this respect differing from the blood-corpuscle of the oviparous Vertebrata generally, and of the early mammiferous embryo. But here the resemblance between the blood-corpuscle of the mammifera and that of the Invertebrata ceases. In common with the blood-corpuscle of the oviparous Vertebrata, that of the Invertebrata differs from the blood-corpuscle of the mammifera in not attaining to a decided third phase."— *L. c.*, p. 104.

The account given by Mr. Jones of the corpuscles existing in the lymphatic vessels of man and the mammifera, is of peculiar interest, when taken in connexion with Hewson's description of the genesis of the red corpuscles ; it may be proper to premise that the fluid for examinotion was taken from the thoracic duct.

" The corpuscles were,—1st, Granule-cells in both coarsely and finely granular stages, altogether similar to those of the blood. 2nd. Besides many cells in transition from granule to nucleated phase, nucleated cells in both uncoloured and coloured stages, quite the same as those of the blood. The nucleated cells were fully distended independent of the addition of water, and were comparatively the most numerous of the corpuscles in the lymph ; those in the coloured stage being more so than those in the uncoloured stage. Slight as the colouration of

the coloured stage of the nucleated cell was generally, some few cells presented it perhaps in a more marked manner than is usually presented by the same cells as they occur in the fully-formed blood; in this respect approaching to the red nucleated cell of the blood of the early mammiferous embryo. Some even were of an oval shape. 3rd. A considerable number of free cellæform nuclei, both uncoloured and in different degrees of progressive coloration. These free cellæform nuclei were not much affected by the action of acetic acid or water. Lastly, there were seen here and there among the other corpuscles the empty shell of a nucleated cell in the coloured stage, with a free cellæform nucleus beside it as if just extruded by the bursting of the cell-wall. This is a circumstance which may be viewed as additional evidence, and this of a direct kind, in support of the view above given of the nature and origin of the ' red corpuscle' of Man and the Mammifera.—*L. c.*, p. 82.

The author concludes, from his researches, that " the corpuscle of the lymph of vertebrate animals is identical with the corpuscle of their blood; in the oviparous vertebrata, it occurs, like the corpuscle of their blood, in the two phases of granule and nucleated cell; whilst, in man and the mammifera, it occurs, like the corpuscle of their blood, in the three phases of granule-cell, nucleated cell, and free cellæform nucleus." It is further remarked, and the observation is one of much physiological interest, that the fluid of the thoracic duct of a mammiferous animal may, in consequence of the relatively great number of nucleated cells and of the small number of free cellæform nuclei it contains, be compared with the blood of the same animal in its embryo state.—(*L. c.*)

It will not escape the reader how closely these observations bear upon the theory of Hewson. There are doubtless some discrepancies between that theory and the account of Mr. W. Jones, which that gentleman has pointed out; one disagreement being that, whereas Hewson concluded the corpuscles he detected in the juice of the lymphatic glands were merely ' central particles,' the author we are quoting has ascertained that they are in reality nucleated cells, having very distinct nuclei, and extremely pale cell-walls : " in consequence of this, Hewson appears to have overlooked the cell-wall and distinguished the nucleus alone, but when the cell-wall had already become evident around the nucleus by having acquired colour, he naturally supposed that it was a new formation."—(*L. c.*, p. 83.) But, notwithstanding this and some other discrepancies, we regard these researches as confirmatory of that which is the fundamental part of Hewson's great theory, namely, that the red corpuscles of the blood are formed or manufactured in the lymphatic system. If this become an established principle in physiology, as we ourselves believe it will be, *provided the lacteal apparatus be included in the term lymphatic system,* then may the patient, reiterated investigations of our distinguished countryman, Hewson, and the great truth they will have mainly contributed to elicit, be regarded as one of the most splendid additions the science of organisation has ever received.

Before dismissing the consideration of the red corpuscles, we must solicit the attention of our readers to Hewson's experiments on the curious changes these bodies undergo when placed in water and saline solutions. In the following experiment the influence of water in distending the corpuscles, and in making them spherical, whatever may have been their previous form, is described.

"Take a drop of the blood of an animal that has large particles, as a frog, a fish, or what is still better, of a toad; put this blood on a thin piece of glass, as used in the former experiment, and add to it some water, first one drop, then a second, and a third, and so on, gradually increasing the quantity; and in proportion as water is added, the figure of the particle will be changed from a flat to a spherical shape. When much water is added, the vesicle will by degrees become thinner and more transparent, and will at last be dissolved."—*Hewson,* p. 222.

The latter part of this account contains an error, for the red corpuscles are not actually dissolved by water; they are thereby only deprived of their colouring matter, a fact first observed by Dr. Young. The effects produced by saline solutions are thus accurately noticed:—

"If a saturated solution of any of the common neutral salts be mixed with fresh blood, and the globules (as they have been called, but which, for the future, I shall call flat vesicles) be then examined in a microscope, the salt will be found to have contracted or shrivelled the vesicles, so that they appear quite solid, the vesicular substance being closely applied all round the central piece. In proportion as the solution of salt is diluted with water, it has less effect, and when diluted with six, eight, ten or twelve times its quantity of water, it produces no change in the figure of the vesicles, whose flat shape can then be seen, even more distinctly than when mixed with the serum itself."—*L. c.,* p. 229.

A little consideration is sufficient to show that these experiments, which by their delicacy rival some of the more minute manipulations of chemistry, contain the germ of the important discovery subsequently made by Dutrochet as to the absorbing powers of organic membrane; and they also afford the best proof that can be adduced to prove the correctness of the doctrine now universally admitted, that the blood-corpuscles are in fact floating cells. It is true that Hewson himself did not draw any such brilliant inferences from his precise and often-repeated researches; what he might have done, if his life had been longer spared, it would be now vain to speculate. But although these great results escaped him, this profound physiologist firmly established a principle in the physiology of the blood, of which the importance is only now imperfectly comprehended: we allude to the fact that the normal figure of the red corpuscles is preserved by the serum, or, to speak more accurately, by the salts held in solution in that fluid. In answer to the question—Whence is it that the serum has the property of preserving the flat form of the blood-discs? Hewson replies, "it is principally by the salts of the serum that this effect is produced, as is proved by adding a small quantity of any neutral salt to water, when the water is no longer capable of dissolving those particles, nor does it alter their shape when the salt is used in a certain proportion."—P. 229.

All these remarks show how powerfully the red corpuscles must be affected, and especially in disease, by the qualities of the liquid vehicle in which they are habitually placed; not merely as regards the influence exerted upon their colour by the salts of the serum, but likewise with respect to their form, and those other physical properties, by which their attraction for each other is, doubtless, greatly modified.

Our notice of these "Experimental Inquiries" has already extended so far, that we have only space for one or two passing allusions to Hewson's description of the Lymphatic System, which, although containing, mixed

with the prevailing errors of the day, a large amount of valuable matter, has lost much of its interest in consequence of the more accurate knowledge now possessed respecting the process of absorption. In the following account, the polygonal depressions or cells described by Dr. Sprott Boyd as containing the gastric secreting tubules, and likewise the membranous partitions separating the cells from each other, spoken of by Krause, Huschke and other anatomists as plicæ villosæ, and forming a kind of transition to the true villi of the small intestine, are distinctly noticed.

"At the upper part of the stomach the villous coat appears in a microscope like a honeycomb, or like the reticulum, or second stomach of a ruminant quadruped in miniature ; that is, full of small cells, which have thin membranous partitions. Towards the pylorus these partitions are lengthened so as to approach to the shape of the villi of the jejunum."—P. 188.

Hewson also describes the honeycombed appearance of the mucous coat of the large intestine ; and in the appended extract he has given a clear account of the villi of fishes and reptiles, animals in which, by Rudolphi and others, their existence has been denied : the reader will also mark the network of lacteals here spoken of, and subsequently depicted by Krause. " That the villi in some fish have a network of lacteals, I have distinctly seen in the turbot, where I have injected the lacteals with mercury, which readily runs from those vessels into the villi, and makes them turgid and erected. In the same way I have likewise seen a network of lacteals on the villi of a turtle, where these villi are of a different shape, and in some parts of the gut are cellular, or honeycombed, something like the lower part of the human stomach, only the partitions of the cells are here much larger." And again, in combating the notion of Liberkühn, that each villus has an ampullula, the author says, " of the fallacy of this opinion I was first persuaded from observations made on fish, birds, and amphibious animals, in all of which I can demonstrate that the villi have a network of lacteals as well as a network of arteries and veins."

The account of the compound character of the papillæ of the tongue, anticipates, in some degree, the very accurate investigations of these parts, lately published in the Physiological Anatomy of Dr. Todd and Mr. Bowman.

"The papillæ of the tongue in the human subject appear to the naked eye, when they are not minutely injected, quite smooth, but on a minute injection each of these papillæ appears covered with small vascular processes or villi; so that in such a tongue every one of the papillæ seems in the microscope like a bunch of fibres, or rather like a sheaf of corn; some preparations of which, adapted to the microscope, I have now by me. The learned Albinus seems not only to have observed this, but to have had the same idea of the use of these processes, which he calls tubercles, and has painted them like those little eminences that appear upon a nipple, but I find them much longer."—*L. c.,* p. 193.

An ingenious, and probably the true, explanation of the great number of valves in the absorbent vessels, is assigned in the following passage :—

"The lymphatic system is very full of these valves, much more so than the venous, and the reason of this difference seems to be, that the blood in the venous system is strongly pressed forwards by the vis a tergo from the action of

the heart and arteries, and therefore its course is less liable to be interrupted by any accidental pressure. But the motion of the absorbed fluid in these vessels having no such force, but only that of the attraction at the orifice, and the peristaltic contraction of the coats, might easily be overcome by any lateral compression, were it not for the valves, which seem to be given to prevent the retrocession of the lymph being considerable, and to make any lateral pressure, instead of preventing, rather promote its passage to the heart."—*L. c.*, p. 195.

It is interesting to see in what light Hewson regarded that intricate branch of minute anatomy—the structure of the secreting glands. Only a few incidental notices are given ; but, from the views expressed in the subjoined extract, so accurate when contrasted with the received opinions of the day, it is evident that he was advancing in the right direction, although still biassed by the erroneous doctrines of Ruysch. In alluding to the difficulty of distinguishing clusters of small vessels, such as those of the Malpighian bodies of the kidneys, from glandular follicles, and to the errors consequent thereon, Hewson remarks :—

"On making a variety of experiments on these other glands, (namely, the mammary and the salivary,) I think it evident in what manner the deception has happened to those ingenious anatomists ; namely, when the excretory ducts of the breast, for example, are injected with vermillion and painter's size, the small acini of which that gland consists are made extremely red, and such a preparation being dried the acini appear as large as pins' heads, so that the breast has been suspected to have follicles of that magnitude ; but on injecting the breast with mercury, which is a brighter substance, and better contrasted to the dried fibres, I have distinguished what in the other preparation might be mistaken for a bag was here evidently no more than the extremity of the excretory duct, terminating in one of these acini, and dividing into a number of branches so suddenly as to come near to Ruysch's description of the penicilli of arteries ; but the small branches, into which this extremity of the duct divided, were so close to one another, that in the preparation where they were filled with size and vermillion, they could not be distinguished, but in that where they contained mercury, it evidently appeared that, in each acinus of the magnitude of a pin's head, there was a considerable number of branches, but so small as not easily to be seen with the naked eye."—*L. c.*, p. 191.

In bringing this article to a conclusion, it would be supererogatory to say that these admirable investigations are worthy of universal and careful perusal ; the only drawback, indeed, to the satisfaction with which we hail this last production of the Sydenham Society, is the circumstance that such a complete edition of Hewson's works should be confined to the members, numerous as we are happy to know they are, of that institution. To Mr. Gulliver we must again tender our best thanks, for the able manner in which he has discharged the onerous duties devolving on the editor of a series of Inquiries embracing so varied and comprehensive a field as those we have been considering. It was a task requiring no ordinary labour and judgment to illustrate the importance of Hewson's discoveries and observations, by contrasting them with the investigations both of his predecessors and successors ; that this great desideratum has been attained in the copious and well-selected notes appended to the present volume, will be, we feel assured, acknowledged by all impartial readers ; and with this conviction we congratulate the able editor on the acceptable addition he has made to medical literature.

I. HEALTH OF TOWNS' ASSOCIATION. REPORT OF THE COM-
MITTEE TO THE MEMBERS OF THE ASSOCIATION, ON LORD
LINCOLN'S SEWERAGE, DRAINAGE, &C. OF TOWNS' BILL.
Pp. 122. London : Charles Knight and Co. 1846.

II. UNHEALTHINESS OF TOWNS, ITS CAUSES AND REMEDIES ;
being a Lecture delivered in the Mechanics' Institute at Ply-
mouth.   By Viscount *Ebrington*, M. P.   Published by the
Health of Towns' Association. London : Charles Knight and
Co. 1846.

III. ON THE HEALTH OF TOWNS, AS INFLUENCED BY DEFECTIVE
CLEANSING AND DRAINING, AND ON THE APPLICATION OF THE
REFUSE OF TOWNS TO AGRICULTURAL PURPOSES.   Being a
Lecture delivered at the Russell Institution.   By *William A.*
Guy, M.B. Cantab., Professor of Forensic Medicine, King's
College, &c. London : Henry Renshaw, 1846.

IV. THE LIVERPOOL HEALTH OF TOWNS' ADVOCATE ; published
under the sanction of the Committee of the Liverpool Health
of Towns' Association.   Edited by *John Sutherland*, M. D.
Senior Physician to the Liverpool Dispensaries.   London :
Longman and Co. 1846.

V. THE IMPROVEMENT OF MANCHESTER. A REPORT SETTING
FORTH A PLAN PROPOSED BY THE TOWNS' IMPROVEMENT COM-
PANY, COMMUNICATED TO THE GENERAL PURPOSES' COMMITTEE
OF THE TOWN COUNCIL.

OF these several publications, the most important is the Report lately
issued by the Committee of the Metropolitan Health of Towns' Association;
and when we announce that this valuable document emanates from the
pen of Dr. Southwood Smith, it would be superfluous to add that it is
deserving of the most careful consideration of all who are interested in the
great question to which it relates.

In a former Number of this Journal (see Med.-Chir. Rev., Oct. 1845)
a hope was expressed that, ere this, legislative means would have been
devised to rectify the crying evils which afflict the poorer part of the in-
habitants of our large towns and populous districts.   Unhappily, however,
this all-important question has, like so many others affecting social im-
provement, been deferred amidst that endless conflict of parties, classes,
and sects, which well nigh defeats one of the great objects of all govern-
ment—the promotion, namely, of the physical, moral, and religious welfare
of the people.* In one respect the delay has been advantageous, inasmuch
as it has afforded an opportunity of maturely considering the merits of the
measure introduced by the late Government, and commonly known as Lord
Lincoln's Bill.   This important and somewhat difficult task has been very
fitly undertaken by the Health of Towns' Association, a society which
comprises among its committee some of the most distinguished and con-

sistent advocates of sanitary improvement, including, with many members
of the two houses of parliament, several eminent individuals connected
with our own profession.   It is also satisfactory to perceive that those two
great cities, Manchester and Liverpool, which are so fearfully interested in
this question, are actively putting forth their energies to struggle with the
gigantic evils by which, in common with all other populous places, they
are so sorely afflicted.   Nor can it be otherwise than highly gratifying,
that one of the nobles of the land, Lord Ebrington, assuming the functions
of an instructor of the people, has efficiently advocated this great cause by
addressing a popular audience in a large provincial town.   These must all
be regarded as favourable indications; because they sufficiently show that,
however lukewarm or indifferent our rulers may hitherto have been, the
indispensable necessity of a general and comprehensive change in the whole
system of drainage, supply of water, ventilation, and other similar matters,
has become universally recognised.

But beyond all other circumstances of promise is the unquestionable
fact that we have at last a *willing Government;* so that whatever other diffi-
culties may remain to be surmounted, and these are neither insignificant
in number nor unimportant in character, the main obstacle to a thorough
amendment has at all events been removed—a ministry, namely, entering
upon one of the most vital questions ever brought before the legislature of
this country, actuated rather by a concern to preserve vested rights than ·
by an anxious desire to ameliorate the condition of the industrial classes.
Favourable as are thus the prospects of a speedy and effectual amendment,
and zealous as are the exertions now being made in so many parts of
England; it is yet a point of momentous consequence, that no erroneous
or short-sighted principles should be allowed to prevail, nor that any false
step should be taken in a matter so nearly concerning the lives and hap-
piness of millions.   It is with this feeling, and with the knowledge that
medical men must and ought to have a powerful voice in this question,
that we propose to lay before our readers such an abstract of the above-
named "Report," as will convey to them the matured views of those best
qualified to judge of what is required to constitute a comprehensive plan
of sanitary improvement.

In our former article some of the defects of the Government measure
were pointed out; and we especially showed the absurdity and injustice
of excluding the metropolis from the benefits of the bill; an omission, we
imagine, dictated by something of the same kind of feeling, which, in the
matter of corporation reform, stayed the hands of a Whig administration
when they approached the colossal abuses of the city.   In the Report be-
fore us we find the following paragraph relative to this and other equally
important omissions:

"The first point to which your Committee would direct attention is the pro-
posed limitation of the Act: that is, the limitation of its operation to England
and Wales to the exclusion of Ireland and Scotland, and to the further exclusion
of the metropolis even of England itself.   Now a large proportion of the
evidence on which the conclusions of the first and second Reports of Her
Majesty's Commissioners are founded is derived from the experience of the
metropolis, and the specific recommendations of the second Report are applied
directly to evils prevalent in the metropolis; while it is universally known and
admitted that the towns in Ireland and Scotland are subject to the same evils as

those ascertained to exist in the English towns, only commonly in greater inten-
sity, and that consequently they stand in still more pressing need of remedies.*—
P. 6.

In an interview which lately took place between the Home Secretary
and a deputation from the Health of Towns' Association, an assurance was
given that one of these glaring defects should be rectified by including the
metropolis in the new sanitary measures about to be introduced by the pre-
sent Government. This is so far well; but the duty of the legislature will
be only half performed, if two of the component parts of the Empire,
Ireland and Scotland, with their millions of inhabitants, are deprived of
the inestimable benefits which must accrue from any well-devised scheme
of improvement. We are also ourselves convinced that the rural districts
of England urgently require ameliorations, which, if left to the apathetic
ignorance and short-sighted selfishness of the parties who exercise the
principal influence in those localities, will be indefinitely postponed. There
is at this time a vast amount of preventible disease occurring in villages
and small towns, causing from time to time frightful ravages; and often
entailing upon the agricultural labourers and their families, years of sub-
sequent distress, owing to the permanent debility induced by typhoid fevers.
And yet, in these very districts, the happiest results have invariably fol-
lowed even imperfect sanitary measures, such as filling up stagnant ponds
in the centre of villages, covering over open ditches, and similar proceed-
ings. There is also an element of success in these instances of primary
consequence—the facility, namely, of carrying out the requisite improve-
ments. In large towns, the vast amount of the existing evils will, under
the best-directed efforts, offer a very serious impediment; but, in the
country, a comparatively trifling expenditure would realise all that was re-
quired, and would speedily be repaid by the saving effected in the poor-
rates. We have been given to understand that the Health of Towns'
Association propose to institute, through the instrumentality of one of its
members, an inquiry into this important subject, with the view of ascer-
taining what is the existing amount of preventible sickness in rural dis-
tricts, and what have been the results of sanitary improvements where
these have been introduced.

After pointing out the ignorance and extravagant jobbing of some of
the existing boards, as well as the obstructions to sanitary improvement
caused by these bodies, the Westminster Court of Sewers being selected
for illustration, the Report points out a serious error in Lord Lincoln's bill,
which, "instead of charging the responsible (public) officer with the duty
of preparing in all cases plans and estimates, expressly empowers the
Commissioners (a fluctuating body proposed to be constituted by the bill,
without professional knowledge and irresponsible) to commence and ex-
ecute works." As if to perpetrate the very abuses for the abolition of
which all disinterested parties are seeking, the bill of the late Government
does not adopt the recommendation of the Commissioners of Inquiry, that
all works whatever should be executed by contracts upon open tenders. It
is needless to point out further that, without such a provision, the public
can never be guarded from jobbing, extravagance, and incompetency.

It is a remarkable illustration of the slow march of improvement in
legislation, that whereas there is an universal conviction from one end of

the kingdom to the other, that if the supply of that prime essential of health, water, is to be efficient it must be constant, and upon the principle of " high pressure," the bill in question, recognises and perpetuates the old intermittent supply, with all its costly and clumsy incumbrances of cisterns, water-butts, ball and stop-cocks ; a system condemned without exception by all who have investigated the subject, as being injurious to the health and morals of the labouring classes ; as vitiating the water, curtailing the supply, and putting the consumer to unnecessary trouble, inconvenience and expense.   We would call the earnest attention of those who are occupied in so many towns of England in devising plans for their improvement, to the following extract from the Report, which concludes the admirable review of the whole subject ; and which is particularly applicable at the present moment, since we are ourselves acquainted with more than one town, where the interested opposition of a few powerful individuals, interested in water companies, threatens, if not to arrest the progress of improvement, at least to inflict on the rate-payers a heavy pecuniary sacrifice in legal expenses.

" Your Committee submit that the facts and reasonings now adduced completely establish the case for which they thus earnestly contend, namely, that every water company seeking legislative aid and protection ought to be compelled by the legislature to furnish the public with filtered water at constant service and high pressure.   But if it is right that the legislature should require all existing water companies to submit to this condition, and to whatever other regulations are proved to be necessary for the maintenance of the public health and the protection of public property, *à fortiori* it ought to withhold its sanction from the establishment of new water companies until the provisions are determined on which the powers and privileges sought can be granted without compromising the interests of the community.   Her Majesty's Commissioners state, as the conclusions to which they have arrived from the vast mass of evidence that has come before them, that the water supply should be constant ; that it should be consolidated with the works of drainage ; that to separate these works is to render both inefficient, and to double or treble the expense for the construction, maintenance, and working of each.   The Commissioners will therefore, indeed, have laboured in vain, if the legislature should listen to the applications now before Parliament ; applications which the very announcement of the conclusions of the Commissioners appears to have suggested ; schemes for the pre-occupation of towns by water-works for trading companies, without the slightest additional security for the public interests.

" A regulation appears, indeed, to have been adopted during the last session of Parliament, that the water companies then sanctioned should be subjected to any future regulations that might hereafter be made in respect to such companies.   But the subjection of these companies to future regulations will not prevent them from making large claims for compensation for the alteration of their first arrangements."—*Report*, p. 64–5.

The abolition of those unseemly and demoralising abominations, cesspools and privies, and the substitution of self-acting water-closets, have been proved by a vast amount of evidence to be economical, as well as highly conducive to health, decency, and morality ; and yet in Lord Lincoln's bill the present debasing system is perpetuated.   There can, we conceive, be no dissent from the opinion expressed in this paragraph :
" These and similar statements have satisfied your Committee that legislation on this point ought to be in accordance with the evidence, and with

the recommendations of Her Majesty's Commissioners; that the construction of the cesspool in all new dwellings ought to be positively prohibited; and that the removal of all existing cesspools ought to be made compulsory, as soon as the general introduction of sewers and drains, combined with an ample supply of water, shall have rendered the general introduction of the water-closet apparatus practicable."—*L. c.*, p. 71.

Another most remarkable defect is that of ventilation, which is altogether omitted, the bill "resembling in this respect those modern encyclopædias of architecture and building, in which the very word ventilation never once occurs from beginning to end." Although it is impossible to overrate the advantages which would result from the general introduction of efficient ventilation in the houses of the poor, yet it would be inexpedient to attempt this by compulsory provisions, as these would interfere with the privacy of domestic life. "But this objection does not apply to buildings intended for public resort, such as churches, courts of justice, concert and assembly rooms, theatres, houses and rooms for the public use of which a license is required; factories already under government regulation and inspection; workshops in which great numbers of workpeople habitually assemble, lodging-houses, and schools. The introduction in a general sanatory measure, of compulsory provisions for the purpose of securing proper ventilation in all places of this description, appears to be justified by the absolute necessity of the case, and to be free from any objection in principle."—*L. c.*, p. 79.

In alluding to the clauses defining the duties of the officer of health, as set forth in the bill formerly laid before Parliament, the Report before us contains the following judicious remarks:

The duties assigned to the medical officer of health in the first of these clauses are highly important, and the able performance of them throughout the country will produce beneficial results, the true value of which it is impossible at present to estimate. Still, however, these provisions do not go to the root of the matter, nor embrace the primary and fundamental duties of the officer of health. These fundamental duties are the verification of the fact as well as of the cause of death, the correct registration of both, and the personal examination on the spot of the sanatory circumstances under which death takes place. It is only by the performance of these primary duties that the duties described in the Bill can be properly performed; that the existence and prevalence of diseases can become known; that the local causes originating and maintaining such diseases can be traced; that the most efficacious modes of checking or preventing their spread can be ascertained; and, consequently, that a true report on the sanatory condition of any town or district can be framed."—*L. c.*, p. 91.

If such officers had existed, the frightful scenes described as often occurring in the abodes of the poor in large towns, when one of their number is struck by death, could never have arisen. One or two instances will suffice to show how urgently this subject calls for the interposition of the legislature. "There are some houses in my district," says Mr. Leonard, surgeon, one of the medical officers of the parish of St. Martin's in the Fields, "that have from forty-five to sixty persons of all ages under one roof; in the event of death, the body often occupies the only bed, till they raise money to pay for a coffin, which is often several days. *   *   *   *   * Upon the 18th of December, 1840, I—— and her infant were brought, ill with fever, to her father's room in

Eagle-court, which was ten feet square, with a small window of four panes; the infant soon died. Upon the 15th January, 1841, the grandmother was taken ill: upon the 2d of February the grandfather also. There was but one bedstead in the room. The corpse of the grandmother lay beside her husband upon the same bed, and it was only when he became delirious and incapable of resistance (on account of his violent objection to his own removal and that of the dead body from the room) that I ordered the removal of the body to the dead-house, and him to the Fever Hospital. He died there, but the evil did not stop here : two children, who followed their father's body to the grave, were, the one within a week, and the other within ten days, also victims to the same disease. In short, five out of six died." The following case is taken from the evidence of Mr. Wild, an undertaker:

" The other day at Lambeth the eldest child of a person died of scarlet fever ; the child was four years old; it had been ill a week ; then came two other children, one three years and the other sixteen months old. When the first child died there were no symptoms of illness for three days afterwards; the corpse of the eldest one was in a separate room ; but the youngest child had been taken by the servant into this room; this child was taken ill and died in a week. The corpse was retained in the house three weeks, at the end of which time the other child also died."—*L. c.*, p. 95.

We believe it impossible to exaggerate the beneficial results which may be anticipated from the investigation of disease with a view to prevention. The author of the Report we are noticing, justly observes, "man has but little power over the progress of disease when once it is produced; but he may exercise a very important control over the circumstances and conditions that give origin to it, when those circumstances and conditions are once ascertained." (*L. c.*, p. 101.) To know with certainty the cause of a disease, is very often to prevent its occurrence. Do we not see this in the case of intermittent fever ; do we not know that effectually to drain a marshy district, is to eradicate the ague formerly prevailing ? And can it be doubted that were the diseases characteristic of our crowded towns thoroughly investigated, they would, in like manner, by removing the cause, be also exterminated ? One, then, of the chief objects to which the attention of the officer of health should be directed is "*the science of prevention.*" After noticing the advantages derived from the systematic observations made by military and naval surgeons on large bodies of men, the writer of this Report goes on to affirm ; "but in towns and cities large classes of persons often exist under conditions as well defined and as steady in their operation as the circumstances presented to the observation of medical officers of the army and navy; the knife-grinder of Sheffield, for example, the ironmongery and toy manufacturers of Wolverhampton, the persons employed in particular departments of colliery and factory labour, persons who work together in large numbers in common workshops, as tailors, dressmakers, &c. In each of these cases, and there are many others, the circumstances injurious to health are common in great numbers : they are steady in their operation, they are uniform in their result ; the connexion between cause and effect can be clearly traced, and in this manner the efficacy of some particular remote cause in producing some peculiar form of disease may be determined sta-

tistically and with absolute certainty, and knowledge of the highest im-
portance may be thus acquired, leading directly and certainly to the pre-
vention of disease. ' What additions may be made to our knowledge of
these causes and of the means of counteracting and removing them by the
combined and continued labours of such a body of public servants, it is
impossible to predict; but surely these observations indicate a new direc-
tion in which protection of the highest kind may be extended to the com-
munity, and especially to the poorer classes, that well deserves the atten-
tion of the statesman."—*L. c.*, p. 102.

We have now noticed in some detail the leading branches of this great
question; but in order to present in one view what should be the principles
guiding an enlightened legislative enactment, we are anxious to lay before
our readers the general conclusions with which Dr. Smith concludes his
valuable report; and which, although taking the form of critiques upon
Lord Lincoln's bill, embody in reality the whole bearings of the sanitary
question.

The sound provisions of the measure are affirmed to be as follows:—

" 1. The general enactment, that the supply of water, the sewerage, the drain-
   age, the cleansing, and the paving of towns, including the suburbs, shall all be
   placed under one and the same authority:
2. The appointment of a Government Inspector:
3. The appointment of an Inspector of Nuisances:
4. The appointment of Local Boards of Commissioners for carrying out the pro-
   visions of the Act in their respective districts:
5. The preparation or the local examination of surveys, plans and estimates, by
   competent and responsible officers, before any works are undertaken:
6. The publication of these surveys, plans and estimates, with expository Re-
   ports for local distribution, in order that the proposed works may be thoroughly
   canvassed by all parties interested in them before they are commenced:
7. The execution and maintenance of all works by contract; the performance
   of the contracts to be supervised by paid and responsible local officers:
8. The appointment in districts of medical officers of health."—Pp. 118–19.

The errors and defects of the Bill are so grave that they require to be
prominently pointed out.

" 1 .The limitation of the Act to England and Wales, to the exclusion of the Me-
   tropolis even of England, and to the total exclusion of Ireland and Scotland,
   without providing for the immediate preparation of a survey and plan of the
   Metropolis, and a Report as to the special measures applicable to the Metrop-
   olis, to Ireland and to Scotland:
2. The omission to create a central superintending authority in subordination
   to the executive government, invested with the same sort of powers with
   reference to the local Boards intrusted with the execution of the details of
   the Act, that the Poor Law Commissioners have with the Boards of Guar-
   dians; instead of this, giving the entire superintendence of the Act to the
   Secretary of State for the Home Department:
3. The omission to take adequate powers for compelling the Boards of Local
   Commissioners duly to execute the Act:
4. The creation of a new, complex, and needless machinery for electing Boards
   of Commissioners, instead of adopting the mode of electing Boards of Guar-
   dians now in use throughout the Poor Law Unions, which is found in prac-
   tice to work perfectly well:
5. Investigating the Boards of Commissions with powers to execute works,

instead of rendering their functions entirely and strictly ministerial and su-
pervising, and neglecting positively to restrict by an express enactment their
duties to acts of this class:

6. The omissions to prohibit by a sufficient stringent enactment, Boards of Com-
missioners from commencing any works without having caused plans and es-
timates to be prepared by their own surveyor, and without having obtained for
these plans and estimates the sanction of the Inspector:

7. The omission to secure by sufficient stringent enactments that all works
whatsoever shall be executed only by contract upon open tenders, and
shall be maintained in repair for terms of years; and that the contractor
shall be bound to undertake any extraordinary works at a fixed remune-
ration:

8. The omission to provide facilities for the formation of public companies for
carrying out by contract the provisions of the act:

9. The omission to make sufficient provision for raising the necessary capital
for the execution of large sanatory improvements: namely, by loan raised
on the security of a special rate to be levied on the properties in the several
localities, the principal and interest to be repaid by annual instalments within
a limited number of years.

10. Fixing the cost on owners, whereas it ought to be placed on occupiers:

11. Neglecting to provide in the manner above recommended, that the expense
remain a charge upon the several properties, unless the owners prefer to pay
the cost in the first instance:

12. Neglecting to make it compulsory on water companies to give the public a
constant instead of an intermittent supply, and to deliver it in all cases at as
high a pressure as is practicable:

13. Neglecting to make it compulsory on water companies either to filter the
water or to provide a sufficient area of depositing bed:

14. The omission absolutely to forbid the construction of cesspools in all new
dwellings, and to provide for the compulsory removal of all existing cesspools
as soon as the general introduction of sewers and drains, combined with an
adequate supply of water, shall have rendered the universal adoption of the
water-closet apparatus practicable:

15. Neglecting the entire subject of ventilation, one of fundamental importance
in a sanatory measure:

16. The omission to give adequate powers to the Commissioners to remove,
under the direction of the Inspector and the District Officer of Health, any
house or houses which may be so situated as to render a street a cul-de-sac,
preventing the possibility of a current of air from passsing through it; and,
the further omission to give power to the same authorities to raise money
for opening thoroughfares, and for the construction and maintenance of public
walks:

17. The omission to provide for the removal of nuisances arising from manu-
factories in towns and populous cities:

18. The omission to provide for the removal of the smoke nuisance:

19. Neglecting in reference to the medical officer of health to make provision
for the performance of his primary and essential duties; namely, the verifica-
tion of the fact as well as of the cause of death, the correct registration of
both, and the personal examination on the spot of the sanatory circumstances
under which death takes place:

20. The omission to make any modification in the mode of assessment of the
window-duties, though a principle of assessment has been pointed out by the
adoption of which the revenue need lose nothing, while great facilities would
be afforded for the better construction of dwelling-houses, and for the freer
admission of light and air.

"If the provisions enumerated are passed into a law, and if the errors and
omissions pointed out are corrected and supplied, this Act will, in the opinion of

your Committee, form one of the most comprehensive, efficient, and beneficent statutes ever enacted by any legislature in any age or country. Its direct effect will be the renovation of the physical strength and vigour of the people, and an augmentation of their means of subsistence, first, by increasing and sustaining their working power, and secondly by diminishing the sum at present expended on sickness, orphanage, and premature decrepitude; and ultimately, a large addition to their longevity: while indirectly, but not less certainly, it will promote their intellectual, moral, and social improvement. Your Committee, therefore, earnestly request the attention of the members of the Association and of the public generally to the facts and conclusions now stated, and they respectfully submit them to the consideration of the Government and of the Legislature."—*L. c.,* pp. 118–122.

. The Liverpool Health of Towns' Association, duly impressed with the painful revelations as respects that great centre of commerce, made in the report of the Commissioners of Inquiry, have zealously and successfully entered upon the good work of improvement; and have set an example which might with great advantage be imitated elsewhere. They have instituted lectures in various parts of the town of Liverpool; they have held public meetings; they have called the attention of the municipal authorities to nuisances and other evils endangering the public health; and, by the publication of a cheap monthly paper, they have laboured to remove error, and to diffuse information, and have thus kept the whole subject alive in the public mind. Efforts such as these are of the first consequence, inasmuch as they not only enlighten the community upon matters in which all have so deep a concern; but likewise, because, by carrying conviction to the minds of the educated classes, they tend to strengthen the hands of the Government; which even when, as at present, favourably inclined, will generally in affairs of this kind, involving such varied and powerful interests, but presenting no political rallying-point, regulate its action to a much greater extent than is ordinarily conceived, by the amount of support it receives from without.

The "Health of Towns' Advocate" contains much valuable matter; and the principles therein expounded have, as the Committee state in their Preface, more than a merely local interest. In Liverpool the causes of insalubrity—over-crowding, filth, bad drainage, damp dwellings, and defective ventilation—act with dire intensity; and the result is, that the three classes of disease, which are the more peculiar index of the amount of preventive sickness—fever, consumption, and convulsions in infants, prevail to a frightful extent. The following table is a melancholy but instructive evidence of this assertion :—

" PROPORTION OF DEATHS, FROM THREE DISEASES, TO THE WHOLE
' POPULATION ANNUALLY.

Diseases.	Birmingham. Deaths.	Leeds. Deaths.	Metropolis. Deaths.	Manchester. Deaths.	Liverpool Parish. Deaths.
Fever	1 in 917	1 in 849	1 in 690	1 in 498	1 in 407
Consumption .	1 in 207	1 in 209	1 in 246	1 in 172	1 in 166
Convulsions .	1 in 645	1 in 301	1 in 453	1 in 205	1 in 188

" We thus find that, in proportion to the population, the deaths from fever are more than double in Liverpool what they are in Birmingham; that above half as many more die from consumption in Liverpool as in London; and that more than three times as many children perish annually from convulsions in Liverpool as in Birmingham."—*Health of Towns' Advocate,* p. 14.

After adducing other proofs of the vast amount of sickness prevalent in this afflicted town, the conductors of the " Advocate " conclude their second number with these most just remarks :

" It is easy to read of these things ; but it is not so easy, without personal experience, to realise their full meaning. We are too apt to consider such statements as mere barren statistical results. They have in them, nevertheless, an awful depth of significancy. They are the indexes of a degree of human woe, compared with which many things that move our deepest sympathies are hardly worthy of mention ; and of a needless waste of human life, which whether we consider its continual existence, its extent, or its accompanying sufferings, throws into the shade the slaughter of battle fields. When we think of the dreadful localities in which sickness has to be endured; the absence of even the most needful comforts in illness ; the loss of time and wages, which are their only property, on the part of heads of families, and the consequent privation to the families themselves ;—the awful mortality, especially amongst the young, from whence it arises that in some instances 64 per cent. of all who die are children under five years of age, while the average age of death of the whole class is reduced to 13½ years ;—the heart-breaking sorrow that is itself so powerful an agent in the production of disease ;—when these things are considered, and when we remember that the causes of all are to a great extent under our control, it will surely require no argument on our part to form the determination, in every well-constituted mind, never to rest till such evils have come to an end."—*L. c.*, p. 15.

It is consistent with our personal knowledge to state that the authorities of Manchester have for some time been zealously endeavouring to ameliorate the condition of that populous town ; and in the Report before us, there is afforded further proof that the Town Council is anxious to adopt the best means of removing the existing evils. After having devoted so much space to this subject, we can only remark that, according to a most competent judge, Dr. Lyon Playfair, " the improvements suggested are happily conceived, and calculated to prove of immense benefit to the town ; the spirit of the recommendations of the Commissioners of Inquiry being completely carried through the whole Report." Although the proposed plan may be unexceptionable, yet all these partial efforts are, in principle, most objectionable ; nothing but a general measure, applicable to the whole kingdom, and superintended by responsible public officers, can reach the root of the mischief.

We have said that there is a willing Government ; and among its members, happily, is that estimable nobleman, Lord Ebrington, whose zealous and personal labours in the advancement of this question are deserving of the highest praise. The whole of his lecture, in addition to a clear exposition of the causes of unhealthiness and on the means of removing it, abounds in the most elevated and benevolent sentiments. How would the whole constitution of society be renovated and ennobled if those who influence its progress, regulated their actions by the divine precepts of Christian charity, thus set forth :

" The golden rule of doing to others as we would be done by would never have led us into such wastefulness and extravagance as what you have seen. If we, in the town and country, landlords and tenants, employers and employed, had endeavoured to make the material, moral, and spiritual condition of our neighbours as healthy as we would wish our own to be, we should have found our reward literally here upon earth. I have shown you the costliness of neg-lect ; but in this as in all other cases, we shall be deceived and led astray if we

begin in a wrong spirit. If we seek merely that which is expedient, no foresight and calculation will be sufficient to guard us against error. Shrewd calculators enough there have been at Liverpool; but all their shrewdness and calculation has not prevented the waste of hundreds of thousands on ill health. Had one half of that energy and thought been devoted to their duty to their neighbour by that wealthy community, how much richer would they have been! 'Seek ye first the kingdom of God and his righteousness, and all these things shall be added unto you.'"—*Lord Ebrington's Lecture*, p. 37.

In alluding to that important point, the duty of the Government in this matter, it is encouraging to find Lord Ebrington thus expressing himself:—

"It only remains that I should say a few words of the power which Government has in this matter. Legislation can do much—very much—so much that no efforts of individuals or associations can avail without its help. We are dependent upon legislation for our supplies of water, and the construction of sewers. Unsound legislation may place a thousand obstacles in the way of both, but a good and comprehensive measure may carry these cheap blessings into every court and alley in the kingdom. To legislation, again, we must look for a good system of supervision and inspection, the abatement of nuisances, the closing up of crowded churchyards, the removal of cattle-markets and slaughterhouses from the centre of our large towns, the consumption of smoke, the purification of our rivers, and the application of the valuable refuse of towns to its proper use, and what is doubtless more difficult, the regulation of the hours of work, and the enforcement of ventilation in public buildings, churches, schools, barracks, factories, shops, and workshops.—*L. c.*, p. 46."

It is still more fortunate that these sentiments are shared by other and influential members of the Administration, several of whom have evinced the warmest interest in the sanitary question.

The lecture of Dr. Guy has reference to a very important subject—the feasibility of reducing the expense of improvement by the scientific application of the refuse of great towns to agricultural purposes; its great object being "to prove that the waste of life and health at present taking place is closely connected with a waste of the raw material of food." It is a truth important to be generally known, "that unnecessary sickness and premature death impeach the prudence, no less than the humanity of the nation which suffers them, and that sanitary measures are, in every sense, and in every way, a gain."—*Lecture*, p. 8.

This proposition is established by various interesting details, but of which our space will only allow us to extract the following:

"Wherever a proper system of house-drainage prevails, the valuable excreta of the human frame containing the ashes of all the food that has been consumed, by the inhabitants, find their way into the sewers. Experience has proved that these excreta, but especially the urine, are among the most effective of our manures; and that they far exceed in value the products of the farm-yard and all solid manures, not even excepting guano. It is well known too, that in China, and in those parts of the Continent of Europe where agriculture is most skilfully practised, great store is set by this fertilizing liquid.

"To this, the most important constituent of sewer water, we must add, as also derived from house-drainage, the alkalies, potash and soda, which are so largely used for household purposes, in the form of pearl-ash, soap, and coommon salt. These alkalies form, as is well known, very important elements of the food and structure of plants.

" Such, then, are the valuable matters poured into our sewers, wherever a proper system of house-drainage is in force.

" Large contributions are also made to the same fertilizing liquid by the refuse of slaughter-houses, markets, and manufactories. The animals fed and worked in our large towns also enrich the sewer-water, by that portion of their excreta which finds its way, in a more or less circuitous manner, into the sewers. Then we must not forget that our granite roads, rubbed down by constant traffic, furnish a large and valuable supply of silica, alumina, and iron, in a state of minute division, and therefore ready to become the food of plants.

" I have yet to mention the large quantities of soot rich in ammonia and sulphurous acid, which, issuing from our chimneys, is brought down by every shower, and conveyed direct into the sewers, forming a not unimportant addition to their contents.

" I should not have entered so much into detail with regard to the contents of our sewers, but that I thought it of great importance to prove by every possible means the value of the fertilizing liquid which we are now so ignorantly wasting."—*Lecture*, p. 20.

So valuable are these debris of towns that it has been calculated the inhabitants of Chorlton-on-Medlock, (a township of Manchester,) rather less than 100,000 in number, would furnish sufficient nitrogen, phosphoric acid, and the other substances, to manure no less than 93,440 acres of wheat: and in Flanders, where these things are managed better than with us, the excreta of an adult are valued at £1. 17s. per annum. In an instance extracted from the Journal of Royal Agricultural Society, it is stated that some water-meadows at Clipstone Park, the property of the Duke of Portland, and which formerly were nothing but a swampy waste, producing for 300 acres but £80. a year, have yielded, by the application of sewerage manure, as much as £11. 4s. per acre annually.

In conclusion, we would urge upon all whose sympathy has been touched by the unexampled sufferings of our poorer fellow-countrymen, as disclosed in the various reports and other documents which have from time to time appeared, to arouse themselves and give a practical direction to their philanthropy. The time is come for sustained and energetic action ; public meetings, petitions to the legislature, appeals to members of parliament, these and similar measures are imperatively demanded of each and all who can exert any, the least, influence upon the march of public events. Whilst it is thus incumbent upon every class to make some effort, there are two professions upon whom, at this critical period, a heavy responsibility rests ; we allude to the clergy and to medical practitioners. Daily witnessing, in all their appalling realities, the calamities and miseries inflicted upon the poor in our great towns and populous places; and knowing by personal experience the evils, which owing either to a benighted ignorance or to a cruel selfishness, some individuals are unwilling to admit, the medical practitioner and the minister of religion have no excuse for inaction. That both will cheerfully enter upon their mission, the experience of the past will not permit us to doubt; and we may therefore confidently anticipate that the clamours which a few interested persons have already raised, will be instantly silenced by the united voice of science and religion, seconded by the good sense of the enlightened part of the community.

LECTURES ON SUBJECTS CONNECTED WITH CLINICAL MEDICINE, COMPRISING DISEASES OF THE HEART. By *P. M. Latham*, M.D. Physician Extraordinary to the Queen, and late Physician of St. Bartholomew's Hospital. Vol. II. pp. 419. London: Longman and Co., 1846.

IN the Number of this Journal for July, 1845, will be found an ample review of the first volume of these Lectures. We have now to continue the analysis of the valuable information which they contain on Diseases of the Heart. Although the important subject of endocardial and pericardial inflammation occupied much of our attention on the former occasion, there still remain a few points in the history of these morbid states, that call for notice.

The *prognosis* in cases of Endocarditis and Pericarditis is—provided the diseases have been sufficiently early detected, and at the same time judiciously treated—unquestionably favourable, if we have respect only to the present restoration of the patient. But what the proportion of cases is in which—although the patient so recovers his health as to be able to resume, without inconvenience, his wonted occupation—the foundation is laid of future cardiac mischief, it is by no means easy to determine. Dr. Latham tells us that of 90 cases of acute Endocarditis and Pericarditis, the result of Rheumatism, observed by him, death took place in not more than three. But of the remaining 87, it was in 17 only that he could feel anything like an assurance of a perfect recovery having taken place—*perfect*, as indicated by the cessation of all abnormal sounds or murmurs. With respect to the other 70 cases, although the patients were discharged from the hospital as recovered, in none had the heart entirely lost all the auscultatory signs of having suffered; and we need scarcely say that the circumstance of a persistent cardiac murmur, remaining after an attack of Carditis, indubitably demonstrates that some degree of structural lesion, however slight, has been left behind.

But the danger of cardiac inflammation is not always proportionate to its severity or to the amount of local injury inflicted on the central organ of the circulation. The state of the patient's general constitution, and the condition of other visceral organs, as well as of the fluids of the body, more especially of the blood itself, have much to do with the chances of recovery in each individual case. Let us briefly note a few of the fatal casualties or accidents, which are observed to occur every now and then in the clinical experience of carditic disease.

1. In some patients, at the very time when the symptoms of recovery may be reasonably expected to take place, a sudden prostration of the nervous system occasionally supervenes, and then there may be such alternate rallying and sinking that, for weeks together, a fatal issue is daily looked for. Yet the patient will less frequently die than recover from this alarming state;—not indeed with a perfect recovery, but so far at least as regards his immediate safety: the heart retains more or less of the footprints of the disease.

2. In other cases, under the same circumstances, a state of extreme anæmia occurs. These, too, not unfrequently recover eventually. The restoration, however, is necessarily very tedious, and full of anxiety.

When either of these conditions, whether of nervous exhaustion or of sanguineous impoverishment, is present, œdema of the feet and ankles often makes it appearance. Nay, the dropsy sometimes becomes general. But even then, the effused fluid may become absorbed under the use of appropriate remedies, and every trace of disease, save of a slight cardiac lesion, may be ultimately dissipated.

3. Symptoms of most grave disorder in some portion of the cerebro-spinal axis may occur in a patient, after his having passed through the acute stage of pericardial or endocardial inflammation, and suddenly carry him off, when everything promises the fair prospect of his speedy recovery.

"Coincident with symptoms referable to the endocardium or pericardium, in one case there has been maniacal delirium, in another epileptic or tetanic convulsion, in another chorea, in another coma, in another fatuity. The patients have died, and dissection has found the brain healthy, and the spinal marrow healthy, and the endocardium and the pericardium alone inflamed. Now, have all the experiments that were ever done or perpetrated upon living animals given intimation of an influence like this, proceeding from the heart to the brain, and from the heart to the spinal marrow; Has not disease here been our teacher?

" All these affections of the brain and spinal marrow, coming on in the course of inflammation of the heart, should be carefully watched and ministered to from the least to the greatest. Wild delirium, epileptic, or tetanic convulsion, chorea, coma, fatuity, are the greatest and the rarest; and mutterings, reveries, transitions from torpor to excitement, subsultus, are the least and the most frequent. But they are all akin one to another. The least may mount up to the greatest, and the greatest run down to the least.

" Moreover, where any of these have been during the progress of the disease, and the patient has survived, they are liable to be continued or to recur during its reparation. Or they may then arise for the first time, as if they took advantage of the weakness and exhaustion of the nervous system."—P. 19.

These attacks of Cerebral mischief, occurring during the continuance of, or the convalescence from, cardiac inflammation, very generally prove fatal. Their pathological history is far from having, as yet, been satisfactorily made out. The necroscopic appearances of the encephalic contents have been, in not a few instances, obscure and inconclusive. How strikingly was this true in the case of suppurative inflammation of the muscular substance of the heart, quoted by Dr. Latham from an early volume of the Medico-Chirurgical Transactions:—" A boy, twelve years of age, was in perfect health on Saturday night and dead on the following Tuesday afternoon at two o'clock. He had, in the opinion of all who saw him, the severest inflammation of the brain. The attack was sudden with great heat and frequency of pulse. He had delirium and convulsions, and pointed to his forehead as the seat of his pain. At length he sank into a state of insensibility and died. Upon dissection, not a vestige of disease was found within the cranium, but the heart was the seat of the most intense inflammation pervading both the pericardium and the muscular substance. Four or five ounces of turbid serum with flakes of coagulable lymph floating in it were found in the cavity of the pericardium, which had its internal surface covered in various situations with a thin layer of

reticulated lymph. Thus far there were the evidences of acute inflammation of the pericardium at an early stage. There was no adhesion of the opposite surfaces: the lymph and the serum had been effused together, and the serum had partially washed away the lymph as it was deposited. Further, when the heart itself was divided, the muscular fibres were dark-coloured almost to blackness, loaded with blood, soft and loose of texture' easily separated and easily torn by the fingers; and at the cut edges of both ventricles small quantities of dark-coloured pus were seen among the muscular fibres. The internal lining was of a deep red colour without any effusion of lymph."

There is good reason to believe that the Cerebral attacks, to which we have been alluding, are often associated with a vitiated state of the blood, in connection with granular disease of the Kidney. Hence the importance of watching the state of the urine.

Supposing, however, that the patient has escaped, or that he has entirely recovered from, all the casualties which we have been mentioning, and that nothing but a very inconsiderable cardiac lesion,—the slightest narrowing, for example, of one of the arterial orifices, or the smallest deposit on one or more of the valves—is left behind, it must be still borne in mind that he will remain extremely liable to a relapse of Carditis from apparently trifling causes. An accidental exposure to cold, a single act of intemperate indulgence, or the putting forth of some unusual bodily effort may soon rekindle the mischief, and thus most seriously aggravate the amount of lesion that already exists. It is, indeed, this very liability to the recrudescence of the primary disease that constitutes one of the most serious features in all cases, where there is reason to believe that the heart has once suffered from rheumatic inflammation.

"Remember," says Dr. Latham, "acute rheumatism is (if we may so speak pathologically) the great parent root of inflammations of the heart. It is also, undoubtedly, one of those diseases for which men are found to have a constitutional proneness. When it has been once suffered early in life, there is a fearful likelihood that it will be oftentimes suffered again. Moreover, the first attack is generally the type of every attack which is to follow. They may not all be equally severe, but they will all take the same course, and involve the same structures. If the first involve the heart, so, probably, will they all. Thus, the thought of a healthy child first seized with acute rheumatism is full of sorrowful forebodings. Its heart is very likely to be inflamed, and it may die; but, whether it die or not, its heart is very likely to be damaged for life. Having had acute rheumatism once, though it may perfectly recover, it is very likely to have it again; and, whenever it again has acute rheumatism, it is very likely again to have inflammation of the heart as its accompaniment."—P. 29.

Now, in reference to these second and third attacks of Carditis, it is of especial importance to bear in mind that the diagnostic symptoms can never be so satisfactory and conclusive as in the first attack of the disease; nay, that they may be even so obscure as to be extremely liable to be entirely overlooked.* Nor are we surprised at this circumstance in reference

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* This remark holds true of other organs besides the heart:—

"It is a general truth, never formally declared perhaps, but well worth our notice, and of great practical importance, that organs must be previously sound to show clearly the nature of the injury or malady which they suffer, and that, in

to the heart, when we consider that the organ was not completely sound, and consequently that the auscultatory characters of its sounds were not normal, when the new inflammatory invasion supervened. If there was adhesion of the Pericardial surfaces left by the preceding attack, there may be no exo-cardial or attrition sound heard at all; and, with respect to any fresh deposit on the Endocardial surface, the only effect of this on the auscultatory phenomena will be merely to aggravate the previously-existing murmurs, but not to induce new ones. "There is the permanent murmur of the old unsoundness, and the recent murmur of the new disease; but how much is due to the old, and how much more to the new, is too delicate an affair for the nicest ear to discriminate." How pregnant with good sense, aye too, and with the soundest medical logic, are these reflections of the author!

"After all, then, you will observe, that, for the actual presence of this secondary inflammation in any case, and for our guidance in treating it, we have only the warrant of conjecture. It is most true.

"But there is such a thing as sober conjecture, as well as sober certainty. And diseases are treated, and cures are achieved, and lives are saved, as often under the guidance of one as the other. Such conjecture, however, is altogether different from the arrogant guess-work, which has no basis of action, and which succeeds once and fails twenty times, and knows as little why it succeeds as why it fails.

"The conjecture which should guide the physician, is rigorous, and calculating, and honest. It acts strictly by rule, and leaves nothing to chance. It does not absolutely see the thing it is in quest of, for then it would no longer be conjecture. But, because it does not see it, it ponders all its accidents and appurtenances, and, noting well whither they point, it takes aim in the same direction, and so oftener hits the mark than misses it. And succeeding thus, it knows why it succeeds, and it can succeed again and again upon the same terms.

"Next to knowing the truth itself, is to know the direction in which it lies. And this is the peculiar praise of a sound conjecture.—P. 54.

Inconclusive, however, as the diagnostic symptoms of second or third attacks of Carditis must be acknowledged to be, it will be sufficient for the wise physician to know that, with every fresh accession of Rheumatism in a person who has once suffered, there is almost invariably such an increase of uneasiness and palpitation of the heart, of dyspnœa, and præcordial anxiety, as to make him keep a strict watch upon the seat of the chief mischief.

Dr. Latham has very convincingly shown, in his former volume, that Pneumonia and Pleurisy are often associated with the first attack of Carditis in rheumatic cases. We need scarcely say that the same complications are common attendants upon all relapses of the heart-disease.

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proportion as they are unsound, they are spoiled for giving true expression to the ills which afterwards befall them. The brain, the lungs, the kidneys, the abdominal viscera, being previously sound and healthy, proclaim themselves inflamed at once. But the brain, with a clot of blood lodged within it, tuberculated lungs, granulated kidneys, a scirrhous stomach, an ulcerated bowel, have their functions and sensibilities in utter disorder and confusion, and are not in a condition to give requisite notice of a new inflammation. A broken instrument is ever out of tune: whatever key you touch, you can never bring out the right note corresponding with it."—P. 33.

His remarks on the *treatment* of these secondary attacks of Cardiac Inflammation have chiefly in view to guard the physician against pushing general blood-letting too far. Although the action of the heart and arteries be tumultuous and violent, and the thoracic anxiety and oppression be great, large depletions of blood are seldom, if ever, required. Even mercury is not *commonly* necessary, in his opinion, in the majority of those cases of secondary carditis. The rule, which he gives for its exhibition, is this:

" Leeches applied to the region of the heart will, by the immediate effect which they produce, test the sort of inflammation you have to deal with, and show whether any and what other remedy will be needed in counteraction of it. If they at once afford marked relief, they thus denote both that the inflammation is easily controllable, and that they, without the aid of any other remedy properly antiphlogistic, will be able to control it. And so it will turn out in the majority of cases. But if they afford no marked relief at once, or, still more, after their repeated application, then they plainly proclaim the inflammation beyond their power to cope with, and they call for the help of mercury (as at first) to withhold it from a fatal issue: but this does not often happen."—P. 59.

We think that Dr. Latham is rather chary in his use of Mercury in the cases alluded to. His very admission, that fresh and progressive deposits of coagulable lymph on or within the heart may take place without the presence of any very well-marked symptoms at the time, might rationally suggest a somewhat more energetic practice. We are by no means friendly to the active administration of this potent medicine—more especially in the commonly-adopted form of calomel—whenever there is reason to suspect recrudescence of Rheumatic Carditis ; but the moderate use of some of the milder preparations, as of the *hydrarg. c creta*, in combination with the *soda carb.*, or the inunction of the mercurial ointment, only very gently to touch the gums, should, in our opinion, be seldom omitted. If we employ the mercurial inunction, the Hydriodate of Potash may be advantageously exhibited internally, at the same time. The application, moreover, of one or two blisters on the cardiac region is always advisable. We have again to express our surprise that so experienced a practitioner as our author should never make any reference to the state of the urine, as affording a very useful guide for determining the proper *duration* of the antiphlogistic treatment to be adopted. As long as this excretion is high-coloured, or exhibits a tendency to lateritious deposit, we may feel assured that the patient should be treated by a cooling antiphlogistic—mild though this may be—regimen. The use, too, of alkaline diuretics, to which Colchicum may be generally added with much advantage, should seldom be omitted.

The organic lesion induced by Endocardial Inflammation may vary so much in point of seriousness as well as extent, that we cannot be surprised at the different effects produced upon the general health of different patients. In some, the only evidence of their having had an attack of endocarditis is the persistence of an endocardial murmur, notwithstanding the perfect integrity of their health, and their capability of active and even of laborious exertion. In others, although their general health is perfectly good, there is, in addition, a tendency to palpitation of the heart, and to a certain degree of dyspnœa, whenever they exert themselves much, as in running, mounting up stairs quickly, or lifting any

heavy weight: mental excitement, too, will have the same effect.   **Now,**
we may reasonably infer that the only injury, left behind in these **two sets**
of cases, is a slight lesion—varying in point of degree—in some **part of**
the valvular apparatus of the heart.   In a third set of patients, **besides**
the admonitory symptoms just alluded to, the heart is found *always*—
whether the individual be at rest or not—to beat with greater force **than**
it was wont to do before the attack.   When this is the case, **there will**
be reason to suspect that hypertrophy—with or without dilatation—**of**
the muscular substance of the heart, may have commenced.   **Still, life**
may be prolonged for many years without much increase of the **mischief,**
provided the person be not exposed to the operation of those **exciting**
causes which aggravate all cardiac diseases, acute and chronic.

"Taking the three descriptions of cases in their order, I believe," **says Dr. La-**
tham, "it to be the tendency of each to pass progressively onward into the **others.**
The endocardial murmur left by acute endocarditis may be simple and **alone, and**
so it may remain for years, but it is ever apt to have a palpitation added to it.   **The**
palpitation accompanying the murmur may be occasional only, and so it may **con-**
tinue for years; but, in the mean time, it is ever ready to become permanent.   **The**
permanent palpitation may remain for a while moderate in degree, but it is **always**
tending to become greater and greater.   Of these three conditions then, the **best**
that experience allows us to hope is, that each may remain stationary; **for their**
changes are never retrograde, but always progressive and always for the **worse.**
Each condition becomes worse as it is converted into the other, and the **condition**
of permanent palpitation passes on to new results, and to the final and fatal **event.**
—P. 97.

It is the consideration of this tendency, however slow and gradual, **to**
a progressive aggravation of the cardiac lesion, which will make the **wise**
physician never fail to instruct and earnestly admonish every patient **in**
whom a persistent endocardial murmur, after a rheumatic attack, is **dis-**
coverable, to guard himself as much as possible against those **influences**
which are well known to inevitably accelerate the progress of all **structu-**
ral changes of the heart.

There is no sure and constant auscultatory sign or indication of **bye-**
gone Pericarditis, even when the adhesion between the pericardial **sur-**
faces is loose and extensive, as there unquestionably is in a great **majority**
of cases of Endocarditis.   It appears to be highly probably that, **when-**
ever the pericardium has once been the seat of decided inflammation, **it**
seldom or never resumes its complete or original integrity.   **The amount**
of change may, indeed, be inconsiderable, if the attack has been **single**
and not very severe; but nevertheless *there* it is.   That a great **tenden-**
cy often exists to the exudation of lymph on the pericardial surface **is**
proved by the frequent occurrence of loose slender adhesions **between**
its opposite faces, or between the pulmonary artery and the aorta, **even**
when there is no record of the person having ever been suspected of **hav-**
ing had any cardiac disorder.   "Some of these (loose slender adhesions)
Mr. Paget never fails to discover, wherever there are white spots upon
the heart, and from the coincidence of the two, he has drawn the sound con-
clusion that both are the effect of inflammation; inflammation, **however,**
of which there are commonly no traces in the history of men's
lives, to match these sure and authentic ones met with after their deaths."

But a much more serious organic change is sometimes found to have taken place, without its having been evidenced by any symptoms during life ; viz. the Adhesion of the opposite Pericardial surfaces over the entire extent of the heart.   True ; the previous history of the person may not be accurately known ; but of this we may be so far certain, that there was nothing in his case to make even the most enquiring physician suspect the existence of any cardiac lesion, while treating him perhaps for disease of another organ.

" It is a question with me then after all, what are the consequences which naturally result to the functions and structure of the heart from simple adhesion of the pericardium.   For I have not facts enough to appeal to of the sort which are required to settle it.   Pericarditis indeed is common enough ; but not simple pericarditis.   The original disease is oftener a complex of pericarditis and endo-carditis than pericarditis alone ; and the original unsoundness a complex of the partially repaired effects of both.   Hence whatever detriment the heart is after-wards found to suffer in its functions and organisation, it is difficult to make sure either how much is due to each, or whether the whole may not be imputed to one ; how much the thickened valve produced, and how much the adhesion of the pericardium ; or whether the thickened valve may not have been exclusively the source of all the mischief, and the adhesion of the pericardium altogether blameless from first to last."—P. 112.

When the adhesion of the pericardial surfaces exists not universally, but only at different points, leaving intervening spaces of unattachment, these spaces (or *loculaments* as a Botanist might call them) may become, from a subsequent attack of pericarditis, the seat of a purulent effusion ; and thus the heart may be found, upon dissection, to be apparently sur-rounded with a number of separate little abscesses.

The adventitious tissue, that unites the opposite pericardial surfaces, is found to vary exceedingly in point of density and thickness.   Sometimes it is so attenuated that the two laminæ seem to be merely incorporated with each other, without any intermediate substance ; while, in other cases, the uniting medium has been found to be half an inch, nay more than an inch, in thickness.   The nature and appearance too of this substance may vary a great deal.

" Its texture sometimes laminated like the coagulum of an aneurismal sac, red or tawny near the heart, and pale or white more remote from it, sometimes of a mixed consistence, in part almost liquid and purulent and in part solid or tuberculous.   Or the adventitious substance. has been of one uniform texture, either so like muscle as to be at first mistaken for the fleshy substance of the heart itself, or so far firmer than muscle as to resemble flesh hardened in brine, either much paler than the heart, or much redder from being deeply injected with blood.   This tough, flesh-like substance may occupy a portion only of the surface of the heart or the whole of it.   I have seen it opposite the right auricle, while every where else the pericardium has closely adhered with little intervening medium, and I have seen it enveloping the entire organ and forming round it (as it were) another case of muscle.   And then, if (what often happens) the muscular substance of the heart itself be augmented, a strange spectacle is disclosed on dissection.   There is an enormous mass displacing the lungs and leaving nothing visible in the entire front of the chest but itself."—P. 116.

Now all this amount of most disorganising change may unquestionably be traced back to an attack of simple Pericarditis, which may have occurred some years before.   Successive accessions of inflammatory disease (masked and unrecognised although these have been) have only served to cause suc-

cessive depositions of fresh layers of lymph ; these layers indeed varying in
point of colour and consistence, from causes which we do not understand.
When the connecting substance exhibits a uniform colour and consistence
throughout, it seems not improbable that a process of progressive inter-
stitial deposition of new matter had been going on for a length of time,
without the supervention of any fresh or distinct attacks of pericardial in-
flammation.　But, in whatever way we choose to explain the formation
of the morbid change, this one thing is certain, that a most serious amount
of mischief may take place on the pericardial surface of the heart without
producing any marked aggravation of the cardiac distress, which was un-
questionably attributable to the first attack of pericarditis.

From the consideration of the diseases of the lining membranes, the
Endocardium and the Pericardium, of the heart, we now pass on to that
of the chief morbid changes to which the Muscular Substance of this
vital organ is liable ; as Suppurative Inflammation,—of which two cases
are recorded ; one of these we have related in a preceding page, the other
is that detailed by Mr. Salter in the 22nd Vol. of the Medico-Chirurgical
Transactions—Attenuation and Softening with or without aneurismatic
Dilatation of one or more of the cardiac cavities, Hypertrophe, Fatty
Degeneration, &c.

Whether it is correct to speak of the *flabby, attenuated, and lacerable state
of the heart* as a result of chronic inflammation may be fairly questioned.
Certainly, in the cases related by Dr. Latham, there is not a shadow of
evidence to make one believe so.　In both instances, the fatal attack began
with vomiting and diarrhœa ; the patients recovered for the time, and there
was nothing to excite the suspicion of approaching death.　But the weak-
ness produced by the intestinal disorder seems to have so aggravated
the long existing, although not suspected, disease of the heart, as very
seriously to have interfered with the due performance of its functions.
Perhaps it will be interesting to give the description of the condition of
the left ventricle, the chief seat of the lesion, in both cases.

In the first, " that portion of the left ventricle already mentioned, which
in its external aspect gave suspicion of an abscess, presented the following
conditions of disease :　There the heart was so attenuated as not to exceed
the breadth of a half-crown piece, and rupture or ulceration preparatory
to rupture was in progress.　The internal lining was destroyed, and to
the rough surface that it left a large irregular-shaped clot of blood was
adherent.　What remained exterior to the clot had lost all cognisable
organisation ; it hardly cohered together and was torn like wet paper.

The aorta throughout its course within the chest (for so far only it
was examined) was dotted with little earthy and atheromatous deposits."

In the second, " the left ventricle was very capacious and its walls
thicker than natural, except at one circumscribed space. This was between
the two large carneæ calumnæ.　Here, at the expense of the muscular
substance which had entirely disappeared, a cavity was formed large
enough to contain half a walnut.　The thickened lining membrane was
here united by lymph to the serous covering of the heart, and both toge-
ther formed its external boundary.　It was diaphanous, and served for the
only barrier which prevented the blood flowing from the ventricle into the
cavity of the pericardium.　There was no laminated coagulum in the
aneurismal pouch."

In both instances, rupture was, as our author remarks, only just antici-
pated by death; the immediate cause of which was probably a paralytic
incompetency of the heart to continue its contractions.   In some cases, as
is well known, actual laceration of the organs takes place; and then, we
need scarcely add, the dissolution is almost immediate.

And here we may allude to a very important fact in the history of very
serious organic lesions of the muscular substance of the heart ; we mean,
the circumstance of the arterial pulse being often but little affected.
Cases of very great dilatation, accompanied with softening and attenuation
of the ventricular parietes, not unfrequently occur, in which the pulse re-
tains a regularity in point of frequency and force perfectly remarkable.
We need not say how apt this circumstance must be to mislead the
unsuspecting physician, more especially if he is not in the habit of ex-
ploring the state of the chest.   In Mr. Salter's very remarkable case,
already alluded to, one of its most striking features was the regularity of
the arterial pulse and of the heart's action, until within the last 48 hours
of life; and yet there cannot be a reasonable doubt but that the substance
of the left ventricle had been the seat of Suppurative Inflammation for two
or three weeks at least before death !   Equally striking was this circum-
stance in the very interesting case of Rupture of the *septum cordis* narrated
by Dr. Latham.   Within 17 hours of death, at the time, too, when the
patient was deadly pale and every part of the surface was as cold as
marble, it is expressly stated that " the pulse was of a good strength, and
the heart was contracting regularly and forcibly."   Ten hours subsequently,
no pulsation could be felt in the arteries, while the heart was perceived by
the ear to move, but not by the hand ; in this state the patient survived for
seven hours.

The prolongation of life for several days, and even for a week or two,
when dissolution has seemed to be almost impending, is another circum-
stance in the history of cardiac disease, that cannot have failed to have
struck the attention of the practical physician.   We have, more than once,
left a patient over night in such an alarming condition of imminent asphyxia
that we did not expect to find him alive next morning ; yet he has lived
for a good many days afterwards.

We have now to direct our reader's attention to a chapter in the history
of cardiac diseases, which has hitherto been scarcely so much as mentioned,
and therefore calls for a somewhat lengthened notice ; we allude to what our
author terms " Shocks of the Heart," in other words, traumatic injuries of
one or more of the valves of the heart, induced by any violent bodily
exertion, and laying the foundation for future hypertrophy, or dilatation,
or both these morbid states of its muscular substance.   Dr. Latham quotes
the following case, communicated by Dr. Bence Jones, as a type or ex-
emplar of such cases :

" A stableman, twenty-eight years of age, was admitted into St. George's
Hospital.   He was suffering, and had suffered for twelve months, severe pal-
pitation of the heart, and was able to mark distinctly the moment of its com-
mencement.   It was one day just after running a horse down the yard to show
off his paces to a purchaser.   He had never had acute rheumatism.   His lips
were blue, his breath short, and his left side painful.   He had a dry cough.
His bowels were confined and his urine free.   It was ten weeks before his ad-

mission that his cough and dypsnœa had begun to be particularly distressing. Auscultation found dulness in the præcordial region over an extent of four inches square, the heart's impulse increased and its first sound prolonged with a low blowing (endocardial) murmur over the aortic valves, and its second sound indistinct. He was bled three times under the urgency of his cough and dyspnœa. These however continued to increase. Five weeks after his admission his legs became œdematous, and in two weeks more he died.

"On examination after death, three pints of fluid were found in the right pleura, and the heart enormously large. In length it reached from the second to the eighth rib, and across the base of the ventricles it measured six inches. The left ventricle was moderately hypertrophied and very largely dilated. The mitral valve was healthy, and the aortic was slightly thickened, and moreover had suffered rupture of a peculiar kind. One of its septa was torn away from its attachments, and thus two of its pouches were reduced to a single irregular one. The right ventricle was dilated, but both the auricles preserved their natural state. In the ascending aorta and in its arch there were atheromatous deposits. The liver was very large, and the spleen and the kidneys were healthy." P. 194.

Now any violent effort or fatiguing exercise of the body may give rise to the mischief that was found in the preceding case. Many a youth lays the foundation of cardiac disease in feats of rowing, leaping, boxing and such like sports. The same thing is not unfrequently the case with horses that have been galloped severely : indeed, immediate rupture of the heart, in a horse previously quite sound and healthy, has been known to be caused in this way.

Whether in "shocks of the heart," followed by tendency to palpitations and other symptoms of disordered heart, there is always a rupture or other lesion of one of the valves, it is not possible to say. It is sufficient to know that, unless great precautions—in the way of quietude, low diet, and (it may be necessary) sanguineous depletion—be used for a very considerable time after the injury, there is good reason to apprehend the supervention of hypertrophic enlargement or of dilatation of the heart. Dr. Latham narrates at length the case of one of his friends, in whom the symptoms of a "shock of the heart"—viz: excessive impulse, and pain in the cardiac region—followed upon a violent collision against another person in the street, while running at full speed. He was treated by the late Dr. Baillie, who bled him largely. It was only after the lapse of some months that he was allowed to return to his avocations. By this time, he had lost his *constant* palpitation. But for a few years it was wont to return painfully upon occasions of excitement. At length he lost it altogether ; and lived 25 years after the shock and perilous illness that was the consequence, actively engaged in a laborious profession. Now, is it at all improbable that, had not the judicious and long-continued precautionary treatment been followed in this case, hypertrophy and dilatation would have ensued ? At all events, there is surely sufficient reason to believe that such consequences have followed upon severe bodily injuries, in persons who had never been suspected of having any tendency to, or degree of, cardiac enlargement.

In the last number of the Edinburgh Monthly Journal of Medical Science, Dr. Quain has published a very interesting paper, entitled "Cases illustrating the injuries to which the Aortic Valves are liable during muscular efforts. The first case recorded is the following :

A man, 26 years of age, who was in good health at the time, and had never suffered from rheumatism, palpitation of the heart, or shortness of breath, was suddenly seized (August 1843), while using a sledge-hammer, with a most distressing sensation in the region of the heart, which compelled him to give over. He complained of "an uneasy shaking of the heart," dyspnœa, and what he called "a noise up his chest and neck, and in his ears," which prevented him from sleeping. For a week subsequently, he continued at light work; but, becoming worse, he came under Dr. Quain's care at the University College Hospital. "There were then very distinct evidences of imperfection of the aortic valves; in the situation of these valves, and replacing their sound, was heard a loud ringing musical murmur—the first sound was also accompanied by a murmur in the same situation, but much less loud: there was present the peculiar diastolic or regurgitant pulse."

Five weeks from the date of the accident, it is recorded that "there are now very evident signs of Enlargement of the heart. The dulness on percussion over its site and its impulse are extended, and the force of the latter is increased. The murmur is so loud that it can be heard at several inches distance from the aural end of the stethoscope, and the diastolic pulse is so marked as to give a very peculiar appearance to the course of the superficial arteries."

Three months later, when trying to do some heavy work, the patient again became conscious of a change in the heart's action; and it was now discovered that "the loud ringing murmur with the second sound, and the slight murmur with the first, were both replaced by the ordinary double bellows-murmur."

The poor fellow lived for two years after the accident, occasionally able to do some light work, but every now and then having attacks of bronchitis, dyspnœa, palpitation of the heart, and *angina pectoris*. The signs of Hypertrophy of the Heart increased; the loudness of the murmur diminished, but its character remained the same. In July 1845, he became anasarcous; the physical symptoms were nearly as before, regurgitation through the jugular veins being now very evident. On the 10th of August he died suddenly, in one of his attacks of dyspnœa.

Dissection.—"On the chest being opened, the heart, enveloped in the pericardium, was found to have encroached much on the situation of the inferior lobe of the left lung. There were traces of old disease of the apices of the lungs; the bronchi were thickened, and the mucous membrane congested. All the cavities of the heart were enlarged and filled with blood. The arch of the aorta was somewhat dilated. The heart weighed 22¼ oz. The chief disease was found at the entrance of the aorta; here it was noticed that the conjoined attachments of two of the valves to the aorta had been separated from the wall of that vessel, and thus those valves were allowed to drop below the level of the third, which retained its connexions. In the drawing, *a* indicates the junction between the valves, *b* is the point at which the separation has taken place; here the wall of the vessel was raised into a superficial elevation about one-third of an inch in length and one-fourth of an inch across. The margin of one of the valves was everted slightly, and studded with small granulations, represented at *c*. It seemed as if a small strip of the living membrane had been torn off at this point. On trying the valves with water before the vessel was cut open, they were found to be quite inefficient; not so the pulmonary."

The most remarkable feature in the preceding case is the rapidity with which the very great hypertrophic enlargement of the heart (it was nearly three times its ordinary size) took place; an alteration that serves to explain the improvement which occurred in the patient's symptoms : the increased muscular power of the heart overcoming in some degree the insufficiency of its valves. Another peculiarity, that is worthy of notice, was the proneness to Bronchitic attacks—a result, no doubt, of the irregularity in the circulation of the blood.

Besides the foregoing case, Dr. Quain mentions two others, in which the primary cardiac lesion—a rupture of the valves—seemed to have been originated in a somewhat similar way.

A porter, in good health, endeavored, while highly excited, to force open a door with his shoulder. "He was seized at the moment with an oppressive sensation in his chest, and, when examined with the stethoscope, the aortic valves were found to be imperfect. His breathing became embarrassed, his heart hypertrophied, and his body anasarcous. He died in about eighteen months from the date of the accident. The imperfection of the aortic valves was found to depend on the convex (inferior) margin of one of them being torn from its attachments, resembling thus a pocket which had been ripped or torn at the end. The heart was much hypertrophied."

The last case occurred in a man, 54 years of age, who has never had rheumatism or any disease of the heart, of which he was aware. While carrying a very heavy load of timber on his back, and in the act of stooping to admit of its removal, he was suddenly seized with so severe a pain in the region of the heart, that he was obliged to let fall his load. Palpitation and dyspnœa commenced at the same time ; and at night, on lying down, he heard a noise which has continued to distress him ever since. When he came under Dr. Quain's observation, five months after the accident, he presented strongly-marked signs of imperfection of the aortic valves and of hypertrophy of the heart. " 'Both sides of the chest are equal in circumference, showing therefore an increase of the left. The apex of the heart is *seen* and *felt* to beat below the seventh rib. The motion has an undulatory appearance. The strength of the impulse is not proportioned to its extent ; a distinct vibratile thrill is *felt* over the entire region of the heart, also over the right carotid and subclavian, but to a much less degree in the left. The diastolic pulse is seen and felt. On *percussion*, dulness in the region of the heart is found to extend upwards from the seventh rib, in a line with the right shoulder, 5 inches ; vertically from the third costal cartilage, $3\frac{3}{4}$ inches ; and directly across the centre of the heart, $3\frac{1}{4}$ inches. By *auscultation*, the second sound is not heard, but its place is taken by a loud musical murmur, which is heard all over the chest, but most distinctly at its upper part, and over the base of the heart. There is also a murmur, but much less loud, with the first sound ; it is heard in the same situation, but more distinctly in the carotids than that with the second.' His urine is slightly albuminous." He has derived relief from the use of cupping over the region of the heart, and of sedatives, &c. He still survives.

These cases of Dr. Quain are very instructive. Dr. Latham mentions an interesting one, to shew that a violent fit of Rage may (very probably)

be the cause of the same valvular lesion which, we have seen, may be produced by a Physical Shock.

A man, in a state of the greatest excitement, seized a knife, and was just plunging it into his own throat, when his wife, with whom he had been quarrelling, rushed upon him, disarmed him, and disappointed his purpose. Some neighbours came in and secured him until his rage had burnt itself out. But from that day he had always been sensible of a palpitation of the heart, which had gradually increased until it incapacitated him for work. Then he became dropsical, was admitted into the hospital, and soon died. All was the work of not many months.

We have now seen that whatever serves to interfere with the smooth and easy play of the heart's action, has a tendency to induce Hypertrophic Enlargement of this vital organ. Such being the case, it is not wonderful that the lesion in question is a common consequence of the existence of any obstruction to the free passing of the blood through the great arterial vessels, and consequently to its easy exit from the ventricular cavities. Hence narrowing of the Aorta, in any part of its course, almost inevitably induces hypertrophy and dilatation of the heart; except, indeed, the mass of blood becomes so much reduced as that the deficient quantity of the permeating fluid makes up and compensates for the abridged calibre of the vessel through which it has to pass. It is, doubtless, in this way alone that we can account for the fact, that the right cavities of the heart are very rarely indeed found to be enlarged in cases of Phthisis, (in which disease there must be most serious impediment to the circulation through the pulmonary arteries) although such enlargement is of frequent occurrence in all the forms of Asthma—in other words, in all diseases in which embarrassment of the breathing, whether occasional or more permanent, is not accompanied with injury of the nutritive functions, and therefore with wasting of the body.

Deformity of the Chest, resulting from curvature of the spine, may become, in point of its effects upon the heart, equivalent to constriction of the aorta, to solidification of the lungs, or, in short, to any other morbid state that occasions a mechanical impediment to the free circulation of the blood, from the centre to the extremities; and thus be the producing cause of hypertrophic enlargement. But, besides the causes already mentioned of this frequent morbid condition, there are others of a less obvious character, and therefore more likely to be overlooked. The following passage points to one of these :

" The coincidence of disorganisation of the heart, especially of its hypertrophy and dilatation, with the marks of chronic disease extensively diffused throughout the arterial system, is very common. The internal lining of the arteries, here and there, in various situations, and upon the whole to a great extent, has lost its transparency, and become a little thickened, and dotted with cartilaginous and atheromatous and bony deposits; but nowhere has its change of structure been such as could be thought capable of producing injury simply by mechanical impediment. And this may be all that is found in the body to account for the heart's unsoundness. But this mere beginning of disease in the arteries, which is indeed a small matter when we see it in single blood-vessels, becomes a great matter, and capable of great effects when it spreads itself throughout the body. It may well be conceived enough to make itself felt by the heart.

" In looking over such records of cases as I possess, it is remarkable in how large a proportion of them I find this condition of the arteries coincident with

hypertrophy and dilatation of the left ventricle. And this, I have said, may be all
that is found in the body to account for the heart's unsoundness. But oftentimes
there is this and much more than this. We see that the disease of the arteries
has reached a more onward stage, and made larger and more extensive deposits of
cartilage and atheroma and bone, while the liver and the spleen and the kidneys
are found enlarged and granulated; and the transparent membranes, as the pleura
and peritoneum, are thickened and opaque. These are evidences and effects of
chronic inflammation, and have a pathological connection one with another. And
it is strange, if they have not also a connection with the disease diffused through-
out the arteries; and it is strange, moreover, if they have not all a connection with
the hypertrophy and dilatation of the heart."—P. 226.

Still we must remember that there is no direct evidence to show that
the affection of the Heart has been the result or *effect* of disease of the
Arteries; nay, the very converse may be nearer the truth. As yet, there-
fore, we must be content to know that the two morbid states are not un-
frequently coincident; and that the existence of such a complication
may be the cause of heart disease being very much more intractable than
a more aggravated form of the organic lesion when the arterial system
remains unaffected. Another occasional coincidence, if not a cause, of
certain affections of the heart, that is enumerated by Dr. Latham, is
granular disease of the Kidney, indicated by the albuminous condition of
the urine. As with the diseases of other viscera in this cachectic state
of the system, so with the heart, it is more than probable that the depra-
vation of the circulating fluid is the agency or medium by which Bright's
disease operates upon the functions—and it may be on the structure too—
of this vital organ. It seems to us very doubtful whether organic disease
of the heart can ever be fairly attributed to granular degeneration of the
kidneys as a cause. It is more probable that the latter may be gradually
induced by the former, in consequence of the stagnation and congestion
of blood in the renal structure, arising from an obstruction to the free re-
turn of the venous blood into the right ventricular cavities. However this
may be, there is no doubt that it is of great importance, more especially
in a prognostic point of view, to watch the state of the kidneys, as indicated
by the urine, in all diseases of the heart. The same thing may be said of
the Liver. The increase of distress, produced by congestion of this very
sanguineous viscus, cannot fail to strike the attention of every practitioner.

In forming our *Prognosis* in a case of Valvular Disease or other organic
affection of the heart, we must take into account not only the suspected
amount of the lesion of the valve or valves, but also the probable cause of
the disease, as well as the character of the patient's constitution and his
general habits and mode of living. When we have reason to believe that
the malady has been the result of rheumatic endocarditis, the prognosis
as to its duration will, *cæteris paribus*, be more favourable than when it has
proceeded from other causes. The reason of this is obvious. By appro-
priate medical and dietetic treatment, the tendency to rheumatic disorders
may unquestionably be very much subdued; and, as the general constitu-
tional health may be sound, the great object of the physician is merely to
prevent the recurrence of a rheumatic attack, and to guard his patient
against those errors of exercise and so-forth, which are so hurtful in all
cardiac maladies without exception.

" On the other hand, advanced life and a cachectic aspect, and the known
habits and ailments of intemperance, or some bad hereditary disposition strongly

marked, or frequent attacks of some constitutional disorder, such as gout, or rheumatism, or gravel, would hardly suffer us to hope that the disease was single and solitary in the mere valve of the heart which it had injured, (though auscultation did not testify to more,) but would rather lead us to fear its universality in the whole arterial system. Here indeed we fear more than we know. But this is a rational fear."—P. 241.

With respect to *Treatment*, it can scarcely require to be stated that our hopes of relieving our patient are to rest almost entirely upon the steady observances of a judicious hygienic regimen, and the regulation of the general health. The management of a case of organic disease of the heart can only be safely conducted by the scientific physician : the mere prescriber is more likely to do mischief than good. No two cases can be treated in exactly the same manner. We perfectly agree with our author that the true nature of his disease should never be concealed from the patient. On the whole, it is a great mistake—and one too that may be a cause of regret ever afterwards—to suppose that the alarm, upon being made acquainted with the truth, may produce serious aggravation of the existing malady. All depends upon the manner in which the communication is made, and upon the remarks which accompany it. Woe betide that man who, whether from indifference to the feelings of others, or from a mere insolent parade of technical knowledge, cruelly proclaims the hopelessness of a malady, without one expression of sympathy or guarded encouragement to the poor sufferer!

On the subject of the treatment of Hypertrophy, there are some judicious and useful observations in the 31st Lecture. That many cases are erroneously set down in practice as examples of this lesion, merely because there is an abiding increased force in the impulse of the heart, is but too true ; and the consequences of the mistake are often much to be deplored, as leading to groundless alarm as well as a most unnecessary activity in the measures adopted. The following extract contains the most valuable portion of Dr. Latham's remarks on the subject :—

"Impulse of the heart, taken alone, however great and however extensive it may be, is not a sure physical sign of hypertrophy. Hypertrophy indeed cannot exist without excess of impulse, but excess of impulse can exist without hypertrophy. When the impulse of the heart is excessive, and at the same time its sounds are obtuse, muffled and indistinct, and the præcordial region presents a larger space than natural which is dull to percussion, then the signs of hypertrophy are complete. And hypertrophy so sure and unquestionable was never cured within my experience. But when the impulse of the heart is in excess, and at the same time its sounds are as loud and clear as ever, or louder and clearer still, and the whole præcordial region is quite resonant to percussion save the small space which is naturally dull, then the signs of hypertrophy are incomplete. Yet if this be enough to constitute hypertrophy, I have seen and treated it successfully in a hundred instances. But in the mean time I have not thought that I had to do with any such affection or ever claimed the least credit for curing it.

"Cases of mock hypertrophy of the heart are indeed very numerous. Young persons at the prime of life are especially the subjects of it. They are often plethoric and often sedentary, and can assign the origin of their complaint to no particular time and to no particular exciting cause. In them, the excessive action of the heart is doubtless owing to a rich and redundant blood; and the cure of their simulated hypertrophy is effected by depletion and abstinence, and the

gradual exchange of indolent for active habits. These are easy cases to deal with.

" Again, young persons are the subjects of it, but they are often pale and thin and dyspeptic, and very sensitive, and inactive from mere debility and nervousness. In them the excessive action of the heart cannot be ascribed precisely to any one thing. The stomach and the nerves and the blood itself are all disordered, and they are all sources from which injurious influences may spring up and travel to the heart; and they all have probably their share in producing the simulated hypertrophy. Being so produced, its cure can only be effected by varied methods of treatment and after a long time, and often not until the constitution has undergone some of those changes which belong to stated periods of life. These are by no means easy cases to deal with.

" Again, young persons are the subjects of it, but they are often neither florid nor pale, neither too full nor too empty of blood. They have no complaint that they can tell you of, and none that you can make out, except an inordinate impulse of the heart; an impulse great enough for any amount of hypertrophy, and constantly present, and admitting of severe aggravation, and ever attended with pain, while the sounds of the heart are still loud and clear, and the præcordial region is still duly resonant.

" These cases are the most difficult of all to deal with. Yet their treatment seems theoretically to lie within a narrow compass. There are no ailments of other organs to set right with the hope that through them you may reach the ailment of the heart. The heart itself contains within itself the sole indication of its treatment. Abate its violent impulse and all will be well. But bleeding will not abate it. Neither will all the variety of anodynes and antispasmodics. Neither will digitalis. For digitalis cannot be given long enough and largely enough for any fair hope of it as a remedy, without fearful hazard of it as a poison. In truth I know no certain medicine and no certain plan of medical treatment that will abate this impulse. But still I know that the very worst of these cases may get well. I have seen some such and watched them for a time and then have lost sight of them, and cannot tell how they have ended. And some I have seen again after the lapse of years, and found them as bad as ever; and some I have found perfectly well. In these last cases hen how has the cure been wrought? Why, it has not been wrought in the way, which would imply a gradual process of bringing down an overgrown structure to its natural size and dimensions. But it has been sudden and abrupt, without any strict use of appropriate means, and sometimes with an utter neglect of them."—P. 262.

One or two of the most useful sedatives of the heart's actions are not so much as even named by the lecturer. Of these, Antimony, in minute doses, is unquestionably one of the most potent. Hydrocyanic Acid is also very useful in some cases. The occasional application of a blister is a good remedy. The same may be said of a belladonna plaster. But, of all external remedies, a seton over the heart is unquestionably the most efficient.

There still remain some important matters to be considered; but the examination of these must be deferred to our next Number, when we shall take occasion to compare the views of the French School on several points with those of our author. Meanwhile, we gladly seize this opportunity of expressing our cordial approbation of these Clinical Lectures. We know of no work where the reader will find so clear and easily-intelligible a view of a difficult practical subject—the Diagnosis of Diseases of the Heart—as in Dr. Latham's two volumes. His interspersed remarks, too, on many questions of general pathology, stamp him as one of the most enlightened writers of the day.

Manuel des Accouchments et des Maladies des Femmes Grosses et Accouchees, contenant les Soins a donner aux Nouveaux-nes. Par *J. Jacquemier*, Docteur en Medecine de la Faculte de Paris. Avec 63 figures intercalees dans le texte.

A Manual of Midwifery and the Diseases of Women in the Pregnant and Puerperal States, with the Management of Infancy. By *J. Jacquemier*, M.D. With sixty-three figures inserted in the text.

Recherches et Considerations sur la Constitution et les Fonctions du Col de l'Uterus, dans le but d'eclairer l'Etiologie des Insertions Placentaires sur cette Region, et de conduire a un Choix de moyens propres de combattre les Hemorrhagies qui en sont les Consequences. Par *C. Negrier*. Paris, 1846.

Researches and Considerations on the Structure and Functions of the Neck and Womb, with the design of elucidating the Etiology of Insertions of the Placenta in that Part, and to indicate the Proper Treatment of the Hæmorrhages resulting from them. By *C. Negrier*.

The works before us are the most recent on obstetric medicine from our neighbours in France. M. Jacquemier's Manual is necessarily, to a great extent, a compilation, and treats at full length the direct and incidental subjects which belong to midwifery. M. Negrier's is a Monograph on the Anatomy and Physiology of the Neck of the Womb, with the view of illustrating that most important part of practical midwifery, the insertion of the placenta over the os uteri, and the hæmorrhage which results from it.

The Manual is divided into five principal parts. The first includes a description of the Pelvis and the Organs of Generation, considered in their relation to Gestation and Parturition.

The second treats of Fœcundation, Pregnancy and Ovology. The third includes the Diseases of Pregnancy and the Diseases of the Ovum and Fœtus.

The fourth embraces the subject of Practical Midwifery, including Natural Labour and the Varieties of Dystocia.

The fifth is devoted to Puerperal Diseases, and the Management and Diseases of the Infant.

The sixty-three engravings which illustrate the text are immediately copied from Moreau's Atlas, although we believe that M. Jacquemier supplied the preparations from whence Moreau's engravings were taken. We think that the diagrams which M. Chailly has adopted are far better suited for the purpose than the more elaborate drawings which are seen in M. Jacquemier's volume, or in the recent English Midwifery works. They

are clear, pointed, and very intelligible, and appear to us, when inserted in the text, to be of great assistance to the student.

The Chapter on the Pelvis, in its normal and morbid states, is very good.   M. Jacquemier follows Naëgele in his description of the small and obliquely-ovate pelvis, giving some of his cases at length, and adopting his views.   He thinks, with Madame Lachapelle, that the evils resulting from a too large pelvis have been loosely stated, and that the fear of displacement of the womb, abortion, &c. is not warranted by facts.

There is an interesting notice of the secondary effects of congenital or accidental luxations of the femur, and amputation of the leg high up, in deforming the pelvis, for which our author is indebted principally to M. Sedillot.

M. Jacquemier's anatomical descriptions are exact and clear. He details some peculiarities of the cervix of the womb.   But M. Negrier enters on this subject at greater length.   The latter transcribes in succession various opinions on the disposition of the muscular fibres of this part of the womb, the result of which is in our mind to lead to the impression that they are too intricate to be made out satisfactorily.   The general results of Negrier's researches into the arrangement and character of the fibres of the neck of the womb are as follow :

(1.) The tissue of the cervix is of the same muscular nature as the body of the womb.

(2.) The number of fibres is infinitely less in the neck than in the body of the womb—and

(3.) These fibres are not in continuation with those of the body of the womb, excepting only a band posteriorly which descends from the fundus to the lower part of the neck, and even as far as the vaginal cul-de-sac.

(4 & 5.) The number of the circular muscular fibres of the neck, in which two layers are not recognised, as in the body of the womb, diminish towards the inferior aperture, where, according to some anatomists, they collect to form a sphincter.

It is thus that the neck of the womb does not possess, excepting in a very trifling degree, perpendicular fibres which abound in the body of the womb, and hence, so far as muscular fibre is concerned, there is an independence between these two parts.

Besides the difference which is to be noticed in the number and texture of the fibres of the neck of the womb, M. Negrier remarks on the differences in the vascular and nervous supply to these two parts of the same organ.   The neck of the womb derives its blood from two large arteries, the uterine, whose primary trunks envelop and penetrate the walls of the cervix, while the body of the womb is supplied from a less considerable source, the spermatic arteries.   The cervix possesses spinal nerves principally; the body, nerves from the ganglionic system.   And it is impossible, says M. Negrier, but that this disposition must exercise a most important influence in the functions of the organ.   Still further to mark the distinction between the cervix and the body of the uterus, M. Negrier passes rapidly in review the functions of menstruation, fecundation, parturition, the delivery of the placenta, and the changes which follow labour.

The pains of menstruation, especially those which accompany the ex-

pulsion of false membranes, are referred to the difficult passage of the blood along the canal of the cervix. M. Negrier omits to notice the fact that the cavity of the womb and not the cervix yields the menstrual blood. The peculiar faintness, sometimes amounting to syncope, which is noticed by some women when a fruitful coitus has taken place, results, according to Negrier, from a dilatation of the neck of the womb in its efforts to draw in (aspirer) the semen, and the increased sensibility of the part from the venereal orgasm. M. Negrier notices the formation of the decidua from the cavity of the womb, and the closing of the cervix by the plug of mucus. He speaks of the decidua as a pulpy matter, forming after a time a serous sac ; and he states that the upper part of the mucous plug becomes solid, and organised, resembling the pulp of the decidua, and that blood passes into it, which is not held in regular vessels, but imbibed at that part of the plug in contact with the ovum. He noticed this in ova of the fourth to the seventh month. M. Jacquemier's views of the formation of the decidua are similar to those of M. Negrier. He speaks of its "organisation as very simple. At first it is not distinct from the fluid secreted by the uterus under the influence of the specific excitement caused by fecundation ; a coagulable fluid separating itself into solid parts, which are deposited over the uterus and the ovum in semi-solid layers, offering the most simple form of false membrane ; the remainder of the fluid remains in the cavity of the decidua to disappear at a later time." Our authors do not appear to be aware of the investigations of Dr. Sharpey, Mr. Goodsir and others, into the structure of the decidua. We believe that its glandular origin is now indisputably made out. It is in fact nothing more than a swelling of the mucous membrane, the follicles, blood-vessels, and the lining epithelium of the follicles, all growing rapidly. We are somewhat surprised that these most interesting researches should not have been recognised by M. Negrier or M. Jacquemier.

M. Negrier refers the vomiting which attends the early months of pregnancy to a relation subsisting between the stomach and the fundus of the uterus—the latter, in contra-distinction to the cervix, being supplied with organic nerves. It is the dilatation of the fundus during the first period of pregnancy, and the sympathetic effect of this, which occasions the morning and other sickness.

M Negrier makes a great distinction between the upper and the lower opening of the cervix, the os uteri internum and externum of our anatomists. It is the closure of the upper opening which holds the ovum within the cavity of the womb, and not the parietes of the neck. "The upper opening or sphincter belongs completely, both in its nature and its mode of action, to the body of the uterus—it is its mouth, and the inferior aperture or sphincter approaches rather the tissues of the vagina, both in its structure and in some of its functions." There is a difference in the restoration of the neck of the womb after delivery in primiparæ, and in those who have previously borne children ; and M. Negrier traces the difference day by day, up to the tenth day after parturition. The result is, that in primiparæ the orifices of the neck close up sooner than the parietes of the cavity of the neck, whilst in multiparæ the lips of the external opening close up more slowly than the walls of the cavity. Among all women the walls of the cervix are folded up from above to below, and these per-

pendicular folds result from the closure of the upper opening of the neck.
We shall refer to the practical part of M. Negrier's work by and by.

The disorders of menstruation are divided by Mons. Jacquemier into two
classes—Amenorrhœa and Dysmenorrhœa. In the former, are included
the same class of cases as most authors have described under this title,
while the latter is greatly extended, and is made to take in Menorrhagia
and Vicarious Menstruation. " The line of demarcation between amen-
orrhœa and dysmenorrhœa is not always well defined. If we except
amenorrhœa caused by an imperfect state of the sexual organs, and
amenorrhœa which is symptomatic of some other disease, all other known
species will more naturally be ranked as dysmenorrhœa."

Our author describes amenorrhœa by obliteration of the vulvo-uterine
canal, which, as he justly remarks, is a retention of the menses and not an
amenorrhœa—and amenorrhœa the result of a deficiency in the sexual or-
gans, whether in the absence of the uterus or ovaries, or an undeveloped
or rudimentary state of these parts.

The chapter on the amenorrhœa which is secondary to other diseases,
contains many of the remarks of M. Brierre de Boismont. Of the physical
causes which produce this suppression, the action of cold is the most com-
mon. The menses may be stopped by exposing the body when perspiring
to the cold air, or by immersing the feet or hands in cold water. But habit
diminishes and even destroys this pernicious tendency, and bathing-women
are just as regular as other persons. M. Brierre de Boismont says that he
has seen cases in which the contact of the surface with cold water caused
a very abundant flow.

" The suppression of the sweat of the feet has often been followed by amenor-
rhœa; it has been seen to follow blows, falls, fatigues, acute diseases which have
needed profuse bleedings. The linen which women use during the menstrual
times is with some an immediate cause of a diminished flow, and it may even
stop it. Moral emotions are the most common causes of sudden suppressions
of the menses, although they sometimes occasion a profuse discharge. Both the
physical and moral causes act most surely at the approach of the periods, or just
when they are on. M. Brierre de Boismont having analysed, with reference to
these causes, 190 instances of suppression, found 68 were due to physical causes,
92 to moral causes, and in 30 the cause was not known."

There are two particular forms of Dysmenorrhœa which are described,
the plethoric and the hysteralgic.

Dysmenorrhœa may present itself under several different forms. 1st.
With symptoms of active hyperemia, whether local or general. 2nd. With
marks of uterine neuralgia, or other nervous symptoms. 3rd. The menses
may flow immoderately. 4th. They may show themselves in other organs
besides the uterus.

We think that Monsieur Jacquemier has not done wisely to include the
two last disorders of menstruation under the title of Dysmenorrhœa.
Already this term is undefined enough, as pain in the performance of a
function may represent various and very different pathological states. But
it is adding unnecessarily to the confusion to include other disorders of
menstruation which are not necessarily attended with local suffering, and
have symptoms and morbid actions distinct from them and peculiar to
themselves. Our author does not notice that mechanical form of dys-

menorrhœa which Dr. Macintosh described, resulting from a congenital narrowing of the os uteri or channel of the cervix, and which yields to the artificial dilatation of the stricture.

M. Jacquemier's description of the plethoric or congestive dysmenorrhœa is imperfect. In it, the flow may be very trifling, notwithstanding the hæmorrhagic movement towards the womb. Sometimes it is entirely suppressed, and resembles the sthenic amenorrhœa of some authors. This form of dysmenorrhœa shows itself principally in the first years of menstruation, and among women who have had profuse periods. In the treatment of it M. Jacquemier says—"if it be not intense, simple expedients, such as rest, diluents, cataplasms to the hypogastric region, &c. may suffice to dissipate it. But if it be more severe, it requires more active treatment, as baths and loss of blood. If the symptoms of congestion appear more particularly in the genital organs, leeches to the upper part of the thighs or vulva may be applied. If on the contrary general symptoms predominate, bleeding from the arm will do more good. M. Roche has often noticed that, in plethoric women, bleeding from the arm just before the period has speedily brought on the flow, which has gone on freely and without pain."

In the hysteralgic form of dysmenorrhœa, our author describes with accuracy the varied symptoms which attend this trying affection. In speaking of the causes which predispose to it, he says that a life of forced celibacy in women of ardent temperament, susceptible of strong attachments, predisposes to it; and those who love a contemplative life, or those devoted to a monastic life, are subject to it. M. Pidoux has noticed a peculiar character in this affection among the nuns. It consists in a disorder of the digestive organs, which is not attended with severe gastralgia, but with a torpor of the stomach, and a sensation of general sinking. This is accompanied with great weakness and mental inaction, against which these women, so strong in their will and courage, are constantly struggling.

We do not think M. Jacquemier very successful in his resources for the treatment of this disease. He talks generally of sedatives, as assafœtida, castor and opium, of diffusible stimuli, warm baths, and purgatives, &c. as means to relieve the pain during the period; and to prevent the return of the hysteralgia, we are directed during the intervals, to improve the general health, and to use antispasmodics, baths, cold affusion, friction, alkaline baths, &c. There is a want of precise direction in his therapeutics, which in a manual is a great defect. Students or young practitioners need something more than this sort of vague generality in the prescription of remedies, and it detracts from the usefulness of a work when accurate directions are lost in undefined plans of treatment.

The Second Book, which is divided into three Chapters, comprises several interesting physiological subjects, and includes one important practical subject—the Diagnosis of Pregnancy. The physiological subjects are on Fecundation, the Anatomical and Functional Changes consequent on Pregnancy, and Embryology. These are generally speaking well written for an elementary treatise, and M. Jacquemier has evidently worked at them himself, which unfortunately is by no means the rule with writers on midwifery. M. Jacquemier does not appear to be acquainted with

Dr. Barry's researches into the anatomical arrangement of the contents of the Graafian vesicle, or the first developmental changes as seen in the ovum of the rabbit, or again of the fact that he has seen a spermatozoon within an ovum, before its escape from the ovary.

This last observation by so accurate and well-practised an observer as Dr. Barry, with the associated fact that Bischoff had seen spermatozoa on the surface of the ovary in a bitch killed soon after being lined, seems to us to fix the place where the generative elements meet, and that that place is the ovary. We do not participate in M. Jacquemier's prophecy, that the modern theory of menstruation will overturn this observation, because we still doubt whether the periodical casting off of ova during the menstrual periods really takes place.

M. Jacquemier allows that the nerves of the uterus increase in length during gestation, but he seems indisposed to admit beyond this the truth of Dr. Lee's researches. He speaks of Dr. Rendu having drawn attention to a cellulo-fibrous structure which surrounds and protects the nerves of the uterus and vagina, and which presents in some points a ganglionic appearance. We hope soon to see this question set at rest, and we must express our own conviction, in opposition to Dr. Rendu and Mr. Beck, that Dr. Lee has not been deceived by this appearance in the cellular texture, and that what he has described, is the enlarged nervous system of the womb, which, with its vascular and muscular structure, increases with the increase of this organ during pregnancy.

The Third Book contains a full description of the " Modifications produced by Pregnancy which take on Morbid Characters," or, in other words, the Diseases of Pregnancy. These consist of Ptyalism, Odontalgia, Sympathetic Affections of the Stomach, Constipation, Diarrhœa, Plethora, Palpitation, Syncope, Œdema of the Lower Extremities, Hæmorrhoids, Fever of Pregnant Women, Sympathetic Affections of the Nervous Centres, Diseases of the Mammæ, Relaxation of the Symphyses of the Pelvis, Distension of the Abdominal Wall, Pains in the loins, Affections of the Urinary Apparatus, Pruritus of the Vulva, Leucorrhœa of Pregnant Women, Uterine Hydrorrhœa, Pains in the Uterus.

This Book contains also a section on Extra-Uterine Gestation, another on the Displacements of the Pregnant Womb, a third on the Diseases of the Ovum, a fourth on the Diseases of the Fœtus in Utero, a fifth on Abortion and Uterine Hæmorrhage during the First Six Months of Pregnancy, and lastly, a Section on the Influence which Pregnancy has on Intercurrent Diseases, and their reciprocal influence on it. In this Section also the Hygiene of pregnant women is considered.

M. Jacquemier speaks favourably of bleeding as among the more active remedies for the stomach affections of pregnant women, and he regards the danger which is supposed to attend local bleedings during gestation as greatly exaggerated. We think, with our author, that small bleedings during pregnancy are frequently well borne, and relieve many of the painful affections of this state. It is not an expedient adopted sufficiently often in this country, and we think it merits more attention.

Among the diseases of pregnancy, we notice a paragraph on Uterine Hydrorrhœa, or the *fausses eaux* of other writers. The seat of this serous discharge is not yet determined. The fluid resembles the liq. amnii in

colour and consistency. It is generally colourless, sometimes of a light yellow, sometimes slightly tinged with blood ; its odour recals that of the fœtal appendages. Its quantity is variable, generally moderate, but some-times very considerable. These serous discharges may occur only once, or at different times during one period of pregnancy, and rarely at any other period than the last. There is no appreciable morbid state which either precedes or accompanies them. Sometimes there is a plethoric and at others a feeble state of health. Occasionally they come on during the night, at others in the day time, and sometimes after any movement or emotion. When they appear during labour, they are brought on by the contractions of the womb, and are taken usually for the liq. amnii. In general these discharges are perfectly harmless, neither interfering with gestation nor the health of the fœtus. On examining the membranes after delivery, there is no physical lesion which can prove that they have given way. M. Jacquemier does not believe that the fluid is collected between the amnion and the chorion, nor that it is the hydroperionic fluid in excess, and the absence of hydatids on examination of the fœtal appendages for-bids the assumption that they have caused it. M. Naëgele thinks that these discharges do not come from within the ovum, but that there is a partial inflammation of the inner surface of the womb, and that a serous fluid is thrown out between this surface and the decidua, and that the uterus con-tracting on it forces the fluid gradually towards the neck of the uterus, detaching the decidua in its course, and at length it escapes. M. Jacquemier does not feel constrained to admit an inflammatory process, of which there is no evidence, and he speaks of two cases in the Clinique of M. Dubois, in which the uterus evidently furnished a serous discharge after delivery in place of the lochia. In both these cases the women had had serous discharges during pregnancy. M. Jacquemier is not aware that, many years ago, Dr Ashwell wrote a paper in the Medical Gazette, entitled Aqueous Discharge after Parturition, in which a clear pellucid serum was described as the substitute for the lochia. We do not remember in Dr. Ashwell's cases the occurrence of uterine hydrorrhœa during pregnancy ; and, in a case which we are ourselves cognizant of, a lady has had these aqueous lochia after three successive pregnancies, but no such discharge during gestation. M. Jacquemier very properly observes that, the doubt as to the source of the fluid is of little moment comparatively, as hydror-rhœa is not an important or dangerous disease.

The Chapter on Abortion and Early Hæmorrhages is full and practical, but it does not contain any views of a peculiar or novel kind.

The concluding Section of this Book treats on a subject of much interest, which is scarcely mentioned in the various elementary treatises on midwifery. "The influence of pregnancy," says M. Jacquemier, "on diseases which are strangers to it, and these again on pregnancy, has not hitherto been studied with the care it deserves." "Is the economy," he asks, "during pregnan-cy more protected against morbid actions, or is it more apt to receive them, or is there not in this respect any appreciable difference ?" M. Jacquemier states his belief that pregnancy, speaking generally, is a protection against disease, but it is no certain security against the influence of any one disease. In epidemics, such as the cholera in 1837, most of the pregnant women in the Maternity were attacked ; and the history of this disease, and most other

epidemics, proves that pregnant women are not more exempt than others. "Small-pox is said to be almost always fatal during pregnancy, and scarlet-fever and measles, although less severe, ought to awaken the greatest solicitude when they are intense enough to bring on abortion or premature labour." We are not disposed to think that variola or scarlet-fever during pregnancy is often met with. We have often been struck with the immunity of pregnant women against the infection which may be spreading around them, and no less so with the power which pregnancy has of postponing the development of the exanthemata until after delivery.

M. Jacquemier says that acute bronchitis attacks pregnant women very frequently. In the Maternity he noticed that the women who were enceinte were much more frequently the subjects of acute bronchitis than the éleves sage-femmes, and he is disposed to think that pregnancy predisposes to acute bronchitis. It does not, however, dispose to other acute diseases, for, although our author has searched both ancient and modern records, he has found but very few cases in which pregnant women were attacked with pneumonia, pleurisy, articular rheumatism, or typhoid fever.

M. Grisolle's observations on fifteen women attacked with pneumonia during their pregnancy are quoted. Of these, ten had not reached the sixth month—whilst five approached the seventh, eighth, and ninth month. Of the ten in whom pregnancy had not arrived at the sixth month, four aborted at the fourth, fifth, sixth, and ninth days from the commencement of the disease. In three, abortion was followed by a severe affection of the side of the chest, and death occurred in three or four days afterwards. One alone, in which the pneumonia had not gained ground, recovered well. The six women who did not abort died from the pneumonia. Of the five women who had arrived at a later period of gestation—two were attacked at the seventh month of pregnancy, and a premature labour at the twelfth and fifteenth day took place, the [expulsion of the fœtus preceding only by two days this disastrous termination. Of the remaining three, two gave birth to living children at the seventh and eighth day of the disease, and the other died on the fifth day, undelivered. The Cæsarian section was performed, but the infant was dead.

Mons. Grisolle's other observations on acute febrile diseases, such as enteritis, acute bronchitis, pleurisy, erysipelas of the face and head—indicate a favourable termination without interrupting the course of pregnancy, with the single exception of a typhoid fever which ended fatally.

M. Jacquemier noted three cases of acute articular rheumatism in women arrived at an advanced period of fœtation. The disease was treated energetically on the antiphlogistic plan, but without removing it. These three women were confined at term of living children ; in two of them the symptoms speedily disappeared after delivery, but, in the third, the rheumatism was fixed in the knee, and remained there for three months after parturition. When acute diseases are not intense enough to produce abortion the patients are not in a worse condition for treatment than women who are not pregnant, but when abortion takes place before the disease is cured, it is generally fatal. "The saying of Hippocrates, that acute diseases in pregnant women are mortal, is full of truth when applied to their producing abortion." We suppose our author is alluding here to the fact, that before death occurs in acute diseases, the uterus usually casts off

the ovum—which has been particularly noticed by Dr. Montgomery and others.

Chronic maladies are said by M. Jacquemier to be rarely developed during pregnancy. In females affected with pulmonary phthisis, which has not yet reached the hectic stage, pregnancy goes on well to the full period, and what is more remarkable, they give birth to vigorous and well-developed children. On the other hand, the progress of phthisis is apparently often modified. In some cases, phthisical patients gain flesh, their general health undoubtedly improves, although tuberculisation and disorganisation may be going on. Sometimes, however, but not constantly, there is a real arrest of the disease ; most commonly, it follows its usual course, occasionally becoming more rapid, especially when it is much advanced. Patients die frequently a few weeks after delivery at full term, and sometimes they sink before delivery.

The Fourth Book is devoted to Midwifery. We find M. Jacquemier treating this part of his subject with much care and practical knowledge. His book is a sound midwifery book. Our limits will not permit us to follow him in the various divisions of his subject. He has extended the term natural labour, so as to include pelvic and face presentations, and the natural labour of twins. The phenomena of natural labour, its mechanism, involving the mechanism of cranial, face, and pelvic presentations, and the management of labour, are clearly, perspicuously, and scientifically described.

The causes of dystocia are ranged under four sections. In the first section are the cases in which labour is impeded by an error in the expulsive force, and those in which, the presentation and the other conditions of labour being natural, the power of expulsion alone is enfeebled. The majority of the labours which come within this class are more painful, laborious and dangerous than natural labours, but are frequently terminated spontaneously, requiring only a longer time and general remedies. The cases of dystocia which have reference to the fœtus, such as prolapsus or shortening of the cord—hydrocephalus, hydrothorax, &c., form the second section. The third comprehends labours rendered difficult from mechanical obstacles formed by the parts of the mother. In this, we have labours with deformed and contracted pelves, with the presence of tumours both without and within the vulvo-uterine canal, with contractions or malformations of the soft parts. It comprehends, too, labours rendered faulty by the various displacements of the womb, and labours during attacks of acute diseases. The fourth section is on accidental dystocia, such as convulsions, hæmorrhages, ruptures of the uterus and vagina, &c.

The remainder of the Book is taken up with Operative Midwifery, including the induction of premature labour, and the difficulties which may occur in the delivery of the placenta.

M. Jacquemier admits the reputed power of the ergot of rye in increasing uterine action, which he says is almost constant. He fences the use of this medicine by several acknowledged precautions, although, contrary to the opinion of most authorities, he thinks it may be used before the os uteri is completely open, if the membranes are unruptured. In moderate doses the ergot is harmless to the mother and child, but if, after the liq. amnii has passed off, the child is subject to the influence of the contractions produced by ergot, the effect on its circulation is more

likely to be fatal than under natural contractions. " It has been supposed," says M. Jacquemier, " that the infant may be attacked with a sort of intoxication, but this is by no means proved, and before it is possible, we must suppose that the ergot has been administered during a long time and in large doses." It is evident that our author is not acquainted with the researches of Dr. Beatty and Mr. Hardy, or we think he would be more willing to regard the ergot as a poison to the child. The peculiar form of convulsion seen in some children who have been subject, during their birth, to its influence through the mother for more than two hours, is too characteristic of the poison of ergot to be ascribed to the mechanical pressure from increased or unintermitting uterine action. We think that Dr. Beatty's cases fully bear this out, and the concurrence of both these authors, in the depressing influence of the ergot on the mother's pulse, is an interesting fact which M. Jacquemier does not notice.

The spontaneous return of the head under a shoulder presentation is noticed by M. Jacquemier under the title of cephalic version. He quotes an illustrative case from M. Velpeau, in which this author traced the gradual removal of the head from the right iliac region to the brim of the pelvis, which it entered, and the child was born in the right occipito-cotyloid position.

In the treatment of trunk-presentations, our author enters very fully into the question of the ancient operation of cephalic version. He quotes numerous authorities in favour of it—Mauriceau, Smellie, La Motte, Osiander, Flamant and others. M. D'Outrepont reports five cases in which cephalic version completely succeeded; but in three of them by external manipulation, probably before the liq. amnii had passed off. On this mode of cephalic version, viz. before the membranes are ruptured, M. Jacquemier quotes 15 cases from Busch, in four only of which the version was performed *after* the rupture of the membranes. All the children were born alive. In the midwifery statistics in the kingdom of Wurtemberg, from July 1821 to July 1825, published by M. Rieche, sixteen examples are recorded of cephalic version after the opening of the membranes. One child only was lost, and the several mothers did well. To the cases already published in 1827, M. Ritgen adds 13 others. Siebold, Carus, Joerg and Burns have spoken favourably of this practice. M. Velpeau is the first author in Paris who has reported in favour of cephalic version, although he has not practised it himself. Our author, however, like M. Dubois, restricts this practice, admitting its possibility, to a limited number of cases. We abridge his conclusions on this point.

1. It cannot be attempted if the os uteri is not dilated, or dilatable enough to admit the hand, at the moment of the rupture of the membrane.

2. When some time has elapsed since the escape of the liquor amnii, and the uterus is strongly contracted on the child.

3. When the child is dead.

4. In premature labours.

5. When the arm escapes.

6. When the cord prolapses, unless the child has not yet suffered from its compression.

7. Any complication, the failure of the forces of labour, &c., ought to contra-indicate this version, as its advantages would be more than balanced by the probable use of the forceps to effect delivery.

For further information on this subject we must refer our reader to M. Jacquemier's excellent Chapter on Trunk-presentations.

In the accidental form of dystocia, M. Jacquemier considers uterine hæmorrhage in the latter months of pregnancy. This subject includes both accidental and unavoidable hæmorrhage, and M. Negrier also treats of them in his work.

M. Negrier endeavours to explain the cause of a placental-presentation. He reverts to his researches on the human ovaries, in which he claims the merit of having started the recent theory of menstruation, and he states " that he has there proved that every menstrual epoch is the consequence of the development, separation, and escape of an ovum from a Graafian vesicle. This ovum, carrying a living but *unimpregnated* germ, is seized by the tube, and almost always conducted by it to the cavity of the uterus. This ovum is carried on towards the inferior angle of the cavity by the menstrual blood, if the blood is still flowing, or by the whitish mucus which follows the menstrual exudation." M. Negrier thinks that the ovum may be fecundated at any point between the ovary and the outlet of the womb, wherever the semen may meet it; and that in a placenta-presentation the ovum must have arrived at the internal orifice of the womb, where it becomes fixed.

In a normal fecundation the decidua is forming before the ovum gets into the uterus, and it is the means by which the ovum is confined to the upper part of the womb; but, in abnormal presentations, the ovum not yet impregnated, is conducted into the uterine cavity before the arrival of the semen or the formation of the decidua.

A partial placenta-presentation results from the ovum having arrived near the inferior aperture of the cavity of the womb before it is fecundated, and a complete placenta-presentation implies that the ovum should have got still nearer the lower angle. When it is impregnated at this place, the chorion throws out its villi every where around the superior aperture, and the placenta is fixed, centre pour centre—over the os uteri internum.

M. Negrier explains the well-known fact that, in some placenta-presentations, hæmorrhage occurs at the end of the 5th month, and, in others, that it is postponed to a later period, by supposing that, in the latter cases, some of the radicles of the placenta, towards the middle of gestation, descend into the upper opening and become fixed in the walls of the cervix itself, and this part of the placenta is not, therefore, stretched out and disrupted, as the cervix is taken up during the latter months of gestation. The early hæmorrhages occur from the placenta lying over the os internum, and as the placenta does not yield to the development of the neck, its structure is lacerated, and hæmorrhage ensues. It is then the central insertions which are attended with early and copious bleedings.

M. Negrier illustrates the subject of uterine hæmorrhage by narrating and commenting on two sets of cases; first, those connected with a normal insertion of the placenta at or near the fundus of the uterus, the bleeding in these cases coming from the walls of the cavity of the womb; and second, those bleedings coming from the inferior part of the womb, and from the *inner surface of the cavity of the neck*, on which parts the placenta has been engrafted.

M. Jacquemier designates the first class of bleedings (the accidental

hæmorrhage of English authors) as a utero-placental hæmorrhage, of
which there are two varieties, the first internal or latent, the latter exter-
nal or apparent; whilst M. Negrier applies the term cervico-placental
to the unavoidable forms of bleeding.

With reference to the first class of bleedings, M. Negrier relates twelve
cases, all of which are described in a clear and direct way; and the reflec-
tions which accompany them are generally judicious and appropriate.
The first six cases are examples of hæmorrhage either before or during
parturition. The second is a case of latent bleeding after delivery, with
a second bleeding twelve days after labour, coming on when the child was
sucking. The eighth also is a case of hæmorrhage a month after delivery,
brought on by the act of sucking. The two succeeding cases are examples
of adherent placenta with hæmorrhage, and the twelfth is a natural labour,
in which the perineum was lacerated, hæmorrhage followed delivery,
then metritis, which was cured. On the 18th day after delivery the pa-
tient was walking about. On the 29th day the patient walked about
alone and without assistance, and on the same day, having eaten more free-
ly perhaps than she should have done, she experienced a strong emotion
of joy, and at the same moment spasms, abdominal swelling, particularly
at the epigastrium, constant vomiting, considerable fever, came on—and
the following day she died. No inspection was permitted.

It will be seen that these cases are in many respects very dissimilar,
but they agree in the one thing which the author had in view, namely,
that the hæmorrhage in all of them came from the body of the womb.
The remarks on the first case appear to us to contain the gist of the
author's design in relating them, which is to draw a distinction between
the bleedings from the upper and the lower part or the neck of the womb.
After relating the case M. Negrier says—"In this case the blood flowed
regularly—without intermittent pains—without increase up to the last;
it was blackish. These signs suffice to show that the bleeding came from
the fundus of the womb from a detachment of the placenta. It would
have been otherwise if the placenta had been near the upper opening—the
flow would have been more red—it would have been irregular, and would
not suddenly have ceased after the expulsion of the ovum." In the re-
marks on other cases, M. Negrier notices also the effect of contraction in
diminishing the accidental, and increasing the unavoidable hæmorrhages,
and he insists also on the increased danger which attends the latter
cases.

There are eight cases related by M. Negrier of hæmorrhage, caused by
detachment of the placenta inserted into the neck of the uterus. The
deaths and recoveries in these cases are equally divided, there being four
of each. The abbreviated account of each case, as shown in the heading
of them, is as follows :—

Case 1.—Insertion of the placenta over the neck of the uterus—placen-
tar adhesions—plugging—recovery—child alive—spontaneous delivery.

Case 2.—Insertion of the placenta over the neck of the uterus—exten-
sive placentar adhesions—copious bleedings—plug—recovery—spontane-
ous delivery.

Case 3.—Very large insertion of the placenta over the neck of the
uterus—frequent bleedings during the last three months of gestation—in-

sufficient labour-pains. Forceps applied at the brim. Death of mother and child.

Case 4.—Large insertion of placenta over the neck of the uterus—hæmorrhage—version—compression of the aorta. Death of mother—child alive.

Case 5.—Large insertion of the placenta over the neck of the uterus—copious hæmorrhage—ergot—forceps—compression of aorta. Death of mother and child.

Case 6.—Very large insertion of the placenta over the uterine neck—hæmorrhages—ergot—version—compression of the aorta. Death of mother—child alive.

Case 7.—Large insertion of the placenta over the neck of the uterus—frequent hæmorrhages—plug—ergot—version—perpendicular pressure over the body of the womb. Recovery of mother—child alive.

Case 8.—Large insertion of the placenta over the neck of the uterus—vaginal plug—version—perpendicular pressure of the uterus. Recovery of mother—child restored to life.

M. Negrier devotes a chapter to the prognosis of hæmorrhage from placentar presentations. He quotes several opinions on the extreme danger of this accident, but he prefers the following laconic expression of M. Naëgele : " When these hæmorrhages are abandoned to themselves, or relieved too late, they almost always end in death."

M. Negrier says, too, that " the cervico-uterine bleedings are almost the only ones which kill. Doubtless bleedings from the walls of the body of the uterus may be fatal, but such cases are exceptions."

Although the early bleedings at the sixth and seventh month indicate a large insertion of the placenta at the cervix, still M. Negrier does not regard these cases as so dangerous as those where, towards the close of gestation, a sudden and large detachment of the placenta takes place, especially if it occur in a multipara. He considers the most unfavourable case possible to be as follows:—"The placenta shall be very largely grafted on the walls of the cervix, but notwithstanding the large implantation, the cervix should have increased till the normal term of gestation. It should not be a first pregnancy, and labour should have set in energetically and suddenly, by a very large separation of the placenta. In such circumstances, the hæmorrhage is so sudden and copious, that it almost always causes the death of the patient, whatever may have been the skill and promptitude of the treatment.

The third and concluding part of M. Negrier's treatise is occupied in the treatment of the hæmorrhages which follow a detachment of the placenta. This he divides into three parts. 1. The treatment of hæmorrhage during gestation. 2. During labour, including the unavoidable bleedings from placenta-presentations. And 3. Post-partum hæmorrhage.

It is almost a constant practice, says M. Negrier, to bleed women who are attacked with hæmorrhage before the seventh month of pregnancy. Our author, however, does not fall in with this axiom. His views on this subject are thus summarily stated.

Bleeding from the arm is a uselessly wasteful means to combat hæmorrhages from detachment of the placenta.

Bleeding is useless for the preservation of the foetus whenever a third

of the placenta is detached ; and M. Negrier thinks that this is indicated with sufficient exactness when 60 grammes* of blood flow in the course of an hour, and, excepting in special cases, such a loss will prevent gestation going on, in spite of bleeding.

Bleeding is particularly hurtful in placenta-presentations.   An *exact* plugging of the vagina is the only effective means to suspend copious bleedings during gestation.   The plug ought to be covered with a greasy and tenacious matter, and it ought not to be impregnated with vinegar.

In the second class of cases, where hæmorrhage comes on during labour, M. Negrier insists on the great importance of determining without delay whether the placenta presents or not.   If it does not, and the os uteri is closed, the plug ought to be used to arrest the bleeding.   When labour has set in actively, and the os uteri is supple, then the membranes ought to be perforated.   This plan is contra-indicated if the child presents transversely, or if the pelvis is contracted.   If the hæmorrhage continues after the rupture of the membranes, the plug ought again to be used, for the double purpose of arresting the bleeding and exciting the uterus to contract.   The ergot of rye is now too very useful, excepting only when exhaustion from loss of blood is present, when it will not act. The uterus ought to be followed as the child is expelled, and its contraction secured by friction or circular compression of the belly.   Stimulants are more needed at this time than opiates.   The forceps ought only to be used when the head is low down in the pelvis, and well placed.

In the treatment of placenta-presentations, if the detached portion is large, and the loss of blood is great, every effort ought to be made to empty the womb, and version is the most prompt and efficacious means for this purpose.   If the os is unopened it ought to be forcibly dilated (forcé)—and in women who have had children it rarely offers any dangerous resistance.   To perforate the ovum with the hope of lessening the bleeding, is a useless and absurd practice.   When the orifice of the womb is completely blocked up by the placenta, we ought to search for the side on which it is stretched out the least, and detach the placenta from this part. If the placenta is very *largely* attached, and is adherent and thick to the touch—the centre pour centre insertion—M. Negrier would, without hesitation, perforate it, in order to turn the child.   Fœtal hæmorrhage from the tearing of the placenta is rarely dangerous, if the extraction of the fœtus is quickly executed.   The tearing away of a loose portion of the placenta to stay hæmorrhage can only be useful when the uterine neck preserves the form and consistence of a canal.

M. Negrier ends this chapter by observing " that the complete separation of the placenta before the extraction of the fœtus, and its expulsion from the uterus before the escape of the child, do not bring any modification to anti-hæmorrhagic means—they are complications which render the speedy emptying of the womb more imperious."

This is the general outline of M. Negrier's views on the cause, symptoms, diagnosis, prognosis, and treatment of placenta-presentations.   We cannot but think that he has added very little to what was well known

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* A gramme is equal to 15·438 grains Troy weight.

upon the subject.   We need scarcely say that it is one of special present interest—an interest founded on the views of Dr. Radford and Professor Simpson.   It appears from the last paragraph which we have quoted, as well as from a long foot-note, that M. Negrier is not ignorant of the recent investigations on this subject.   The note which we refer to is a running commentary on Dr. Radford's series of propositions on the class of cases in which the artificial separation of the placenta and the use of galvanism is applicable.   They were published in the fourth number of the second volume of the Provincial Medical and Surgical Journal, and were copied into the Journal de Chirurgie, which is the source of M. Negrier's information upon them.   It is beside our purpose to enter critically into the views of Dr. Radford and Dr. Simpson; but, in order to comprehend M. Negrier's comment, we copy at length Dr. Radford's propositions.

First. As neither delivery nor detaching the placenta ought ever to be attempted until the cervix and os uteri will safely allow the introduction of the hand, rest, the application of cold, but above all the use of the plug, must never be omitted in cases where they are respectively required.

Secondly. If there are unequivocal signs of the child's death, the placenta is to be completely detached and the membranes are to be ruptured. The case is then to be left to the natural efforts, provided there be sufficient uterine energy; if otherwise, the ordinary means are to be used, and in addition galvanism.

Thirdly. When a narrow pelvis exists in connexion with placenta previa, the practice is to detach the placenta and to remove it, then to perforate the head as soon as the condition of the parts allow, and to extract it by means of the crotchet.

Fourthly. When the os uteri is partially dilated and dilatable, so as to allow the easy introduction of the hand, when the membranes are ruptured and strong uterine contraction exists, the practice is to detach the placenta completely.

Fifthly. In all cases of exhaustion, as already referred to in my paper,* the practice is to draw off the liq. amnii by perforating the placenta, as there recommended, then to detach completely this organ and apply galvanism.

Sixthly. In all cases of partial presentation of the placenta, the artificial rupture of the membranes will generally be found sufficient to arrest the hæmorrhage, but if that should prove ineffectual then we must apply galvanism.

Dr. Simpson has also shortly indicated a class of cases in which the artificial detachment of the placenta may advantageously be had recourse to.   "I believe it will be found," he says "the proper line of practice in severe cases of unavoidable hæmorrhage complicated with an os uteri so insufficiently dilated and undilatable as not to allow with safety of turning; in most primipara; in many of the cases in which placental presentations are (as very often happens) connected with premature labour and imperfect development of the cervix and os uteri; in labours supervening earlier than

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* Lecture on Galvanism, applied to the Treatment of Uterine Hæmorrhage. Provincial Medical and Surgical Journal, Dec. 24th 1844.

the seventh month ; when the uterus is too contracted to allow of turning; when the pelvis or passages of the mother are organically contracted ; in cases of such extreme exhaustion of the mother as forbid immediate turning or forced delivery; when the child is dead, and when it is premature and not viable."

In these views of the above-quoted authorities, M. Negrier does not participate. He has intentionally, he says, omitted to speak of galvanism, because it has not the sanction of French accoucheurs. Even admitting the facts of Dr. Radford as to the powerful influence of galvanism, he doubts its power in contracting the walls of the neck of the uterus, because this part does not, in his opinion, enjoy the sort of contraction which the walls of the body of the womb do. " Dr. Radford's (erroneously written Bradford) first and sixth propositions expressed only admitted facts. The third proposition is irrational. It is at least useless in a case of pelvic deformity requiring craniotomy previously to detach and extract the placenta."

According to M. Negrier's anatomical and physiological views, the practice which is advocated in the fourth proposition is dangerous and useless.

With reference to the fifth proposition, M. Negrier speaks of the proposed operation as the more rational, because the placenta itself, which under the influence of induced labour would necessarily be detached, would offer but little impediment to the passage of the child.

He thinks that galvanism can only be used in maternity charities, as it would take at least one hour to get the apparatus in order for use, supposing a practitioner possessed it, and this delay in severe cases is not often allowed to the accoucheur. What too would country practitioners do unless they carried it always with them ? M. Negrier makes no further commentary on Dr. Simpson's papers. M. Jacquemier has not noticed the subject.

It appears to us that M. Negrier does not in the least appreciate the important fact, that hæmorrhage is known to cease when the placenta is completely separated from the surface of the womb. Dr. Simpson has undeniably proved this from the 141 cases which he has collected, in which the placenta was expelled or extracted before the child. We apprehend that this standing fact does not admit of controversy. The reputed fatality of the operation of version in placenta-presentations, as gathered from statistics, may be, and we think is, overrated. Dr. Simpson may or may not be right as to the source of hæmorrhage in these cases ; the placenta may not be so readily detached in difficult cases as Dr. Simpson supposes, but nothing of this kind affects the fact, that in a case of unavoidable hæmorrhage, where a woman's life is in danger from bleeding, and the womb cannot be emptied by turning, that the bleeding may be stopped by separating and removing the placenta. For our own part we are disposed to accept this fact, and the practice founded on it, as a most important aid in these most trying and anxious cases. It is not designed to supersede the practice of turning, but it is designed to come into operation where this great resource fails us. Since Dr. Radford's and Dr. Simpson's papers several cases have been recorded, bearing out the practical views of these accoucheurs, and we have no doubt but that they will eventually be established as rules of practice in certain cases of unavoidable hæmorrhage.

As to the value of galvanism in these and other cases, we still need a large collection of facts, before its just value as a remedial agent can be established. The most recent investigations on it, as applied to midwifery, do not promise so much for it as might have been expected. But we hope Dr. Radford will again publish on this subject.

We shall not follow M. Negrier in the treatment of post-partum hæmorrhage. He advocates the use of the plug in all such cases, with external pressure from above. The compression of the aorta, he says, does not entirely suspend a bleeding coming from the cervix. It is a dangerous expedient, as it occasions loss of most precious time, and severely affects the functions of circulation and respiration.

M. Jacquemier's Chapters on Version, and Operative Midwifery, are practical and well written. He is what may be called an advocate for the use of the long forceps, but he counsels a careful and prudent attention to the class of cases in which they are serviceable, and to the manner of employing them. He has constructed a comparative table of the results of forceps and craniotomy cases in public establishments at different parts of the world, which exemplifies the evident difference in the proportion of cases in which they are used. Dr. F. Ramsbotham's statistics of the Royal Maternity Charity show a proportion of 1 forceps case to 785 deliveries, whilst the cases of Siebold of Berlin, and Carus of Dresden, are respectively 1 in 7 and 1 in 14! M. Jacquemier regards the vectis as a very inferior tractor to the forceps. He exposes the abuse and fallacy of its employment in Holland, by stating that Bruyn pretends to have dislodged 800 heads in the space of 42 years. We quite agree with our author in thinking that those who pretend to use this instrument so successfully have usually employed it in cases where Nature was equal to the task, if time and patience were only allowed. In France, the vectis is principally used to redress the head.

In the operations for Embryotomy, M. Jacquemier advocates the use of Baudelocque's cephalotribe, of which there is a drawing. Among the obstetric operations, M. Jacquemier has included the induction of premature labour. The subject is very well discussed, and this section is a very valuable one. He considers it of the greatest importance to distinguish carefully between premature labour and the induction of abortion, and he thinks it is by having confounded the two that there has been so much repugnance shown in adopting the expedient of artificial delivery at the seventh month on the Continent. Our author gives a concise history of the introduction of this operation. In 1756, according to Denman, several medical men in consultation unanimously declared this practice to be useful and moral. In a short time, Macaulay tried it, and Kelly practised it three times on the same woman. In a short time it passed into general practice. In Germany, although Wenzel practised it in 1804 and 1808, and Krann in 1819, it was not generally adopted until the facts published in England were known, and Reisenger's work in 1820 was circulated. From Germany it soon spread into Holland and Italy. In France it was resisted for a long time, and it is only recently, from 1832 to 1835, that the works of Dezeimeris, Velpeau, Dubois, &c. have triumphed over the prejudices with which it was regarded. M. Jacquemier indicates the class of cases in which it ought to be used, but he has not mentioned Dr. Ashwell's name

in connection with the induction of labour in cases where the uterus is affected with hard and fibrous growths.

The direct or mechanical means to bring on labour are described as—1. Friction over the fundus and neck of the womb. 2. The detachment of the lower segment of the membranes by the finger. 3. Plugging the vagina. 4. Puncturing the membranes. 5. The introduction of some foreign body into the neck of the uterus.

In England the preference is, we believe, generally given to the artificial rupture of the membranes by puncturing either low down, or by conducting the instrument higher up between the uterus and the membranes, to let the liq. amnii escape from this part of the ovum. In France, however, the dilatation of the neck of the uterus by a sponge-tent is the plan most usually adopted. Frictions, the detachment of the membranes, plugging the vagina, &c. are, says M. Jacquemier, but imperfect varieties of this method. MM. Busch and Mende have proposed to dilate the neck by means of three-bladed instruments, which can stretch out after being introduced. M. Dubois uses a speculum to aid the insertion of the tent, which may be retained in the neck by plugging the vagina with sponge. The patient may walk about, and the sponge swells out as it gets moist, and so keeps up a more active dilatation.

The subjects of Symphysiotomy and the Cæsarian Section are discussed at length, and the concluding Book, which includes puerperal diseases, and the accidents to the infant from labour, and the management of the infant, are practical, and well deserve a careful perusal.

The impression which an examination of M. Jacquemier's Manual has left on our minds is most favourable. It is undoubtedly the best book of the kind now extant. It is a full book—but it is not prolix. It is a scientific book—but it is sensibly written and very practical. We feel persuaded that it will be extensively circulated among French students— and it would give us much pleasure if this notice of it were to attract the English student of midwifery to study it. We confess, on looking at the Preface, we were a little afraid that our author would disappoint us. There are scraps of foolish and peculiarly French vanity, which turn out, however, to be very innocent. In speaking, for instance, of the progress of obstetric medicine during the last and present century, he says that " France having been in this branch of science, as in all others, at the head of the movement, and having filled the world with the noise of her works, cannot consent to be placed behind England or Germany in obstetric science—she must preserve her authority in the midst of these active and fertile nations." We of course are only amused at this little specimen of sectional patriotism, and we are happy to assure our readers that they will not meet with any such vapid nonsense in the work itself.

CLINICAL COLLECTIONS AND OBSERVATIONS IN SURGERY, MADE
DURING AN ATTENDANCE ON THE SURGICAL PRACTICE OF ST.
BARTHOLOMEW'S HOSPITAL. By *W. P. Ormerod.* 8vo. pp.
300. Longman, 1846.

ALL who are acquainted with the Metropolitan Hospitals must be aware
of the exemplary manner, as a general rule, in which the medical officers
perform the immediate duties devolving upon them. Let but the sufferings
of the most wretched outcast be sufficiently great to secure his admission
within the walls of these noble institutions, and he has skill and care
lavished upon him equal to that which the wealthiest noble could com-
mand : with, too, the additional advantage of the treatment of his case
being conducted in the presence of the most competent and most formid-
able of critical tribunals—that formed by aspiring colleagues and senior
students. So, too, the business of hospital teaching, with some exceptions,
is far more satisfactorily conducted now than heretofore ; and it is the
student's own fault if he do not avail himself of the invaluable and never
to recur opportunities of improvement which are now so freely opened up
to him. But with all this, we think the Hospital Medical Officer is seldom
sufficiently impressed with the duty which devolves upon him, as respects
the profession at large, of freely communicating the results which his po-
sition has enabled him to achieve. We hold that no man is morally justi-
fied in taking any such important office who is forgetful or careless of
this obligation, inasmuch as he prevents another conferring an important
benefit upon mankind, which he himself is either incompetent or unwilling
to accomplish. The Guy's Hospital Reports furnish an excellent example
of what may be done by the united efforts of men who are alive to the
duties of the offices they hold ; and the names of Brodie, Latham, Ash-
well, &c., point to recent admirable individual exceptions to the general
apathy we are deploring. May the surgeons of St. Bartholomew's arouse
themselves, and follow so excellent a lead ! In the mean time we have
Mr. Ormerod, a most industrious student, and late house-surgeon of that
hospital, coming forward with his " Clinical Illustrations," the fruit of nine
years' assiduous observation in the surgical wards. It is just such a work
a hard student ought to produce, and is not liable to an objection that at-
taches to the published lucubrations of several junior practitioners. If
many of the senior members of our profession have manifested an undue
remissness in wielding the pen and delivering opinions which would be
listened to with attention and instruction, no such coyness has been ex-
hibited on the part of some of the younger portions of the fraternity.
With many of these, a few years' hospital practice (especially if a portion
have been passed in a foreign country) seems to confer the right of dis-
cussing all matters *ex cathedra :* and, in elaborate original articles in the
periodicals, or even substantive treatises, subjects are disposed of with
readiness and precision, upon which the sages of our profession see cause
yet to hesitate and doubt. Mr. Ormerod confines himself to a concise
record of the most interesting facts which have come under his notice,
adding here and there general observations legitimately derived from the

extensive field of observation that has been laid open to him. His work is divided into twenty chapters, treating successively of the more important surgical diseases, the last six being devoted to a consideration of the relative merits of mercury and iodine in the treatment of syphilis. This essay obtained for its author the award of the Jacksonian Prize in 1842.

The miscellaneous character and conciseness of the descriptions of the first portions of the work render any continuous analysis of these out of the question. We shall therefore content ourselves with reference to some few topics, noticing the chapters on the treatment of syphilis somewhat more at length.

Fracture of the Thigh.—Some of the signs of *fracture of the neck of the femur* are frequently absent, although it is rare to find them all so. However doubtful they may be, all injuries of the hip occurring in old people must be narrowly watched, as several days may elapse before it can be positively declared that a fracture has not taken place. " The result alone can test the point, and nearly always the result is, that the limb is broken." A woman, æt. 66, who had been knocked down on her right hip, was admitted. Shortening of about an inch, but without the slightest *aversion*, was observed. The absence of this was explained after death by the partial laceration of the capsule and the irregularity of the fracture, the lower fragment being wedged into and overlapped by the upper.*

In *treating fracture of the thigh*,

" The bed of Mr. Earle, and the bent position on the side, have been discontinued latterly in great part at St. Bartholomew's, for the long straight splint. The limbs unite better, the trouble is less, and the expense is much less ; the high beds being very dear, and spoiling a blanket each time that they are covered. There is also another evil in hospitals ; if fleas and bugs once get into a high bed, it is very hard to get rid of them. There are, however, some cases in which a high bed is good. If a patient has two broken thighs or legs, a high bed allows the chest to be raised, and thus he can move and is less liable to risk in vomiting. It is said, that a fracture in the upper third is not so liable to rise on the high bed, as the lower portion can be brought to meet it. This is very doubtful, indeed, in practice. Thighs broken in the middle, and not fully extended, generally unite with the lower end of the upper part on the outside, or in front of the upper end of the lower portion. This is very hard to prevent on the high bed, and a mere matter of chance on the side ; but with a long splint, and a long inguinal band right up to the axilla, as high as can well be done, it is partially prevented."—P. 45.

Fracture of the Leg.—A case is cited in which a man walked from Highgate to Smithfield (4 miles) in four hours, the tibia being broken across its middle, and the fibula somewhat lower down !

When fracture of the *fibula* is difficult of detection, Mr. Ormerod recommends the following procedure :—

" Place the right hand with the ends of the fingers on the fibula midway between its two extremities, and press it towards the tibia. Even in the stout

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* For a few interesting observations on the diagnosis of this affection, by M. Velpeau, the reader is referred to the Foreign Periscope of our present number.

fibula of a healthy man the bone will often play between its two extremities under this pressure.   If a general easy movement is found, by passing the left hand up and down, to take place all the way between the two attachments of the fibula, fracture is very improbable indeed, whilst occasionally the pain and amount of free motion produced by this pressure show that fracture has taken place. When the tibia and fibula are broken near the ankle-joint, without any bruise or displacement, the detection of crepitus is sometimes very difficult, and can only be ascertained by firmly grasping the ankle with one hand, and the lower-third of the leg with the other, and attempting to move the parts slightly on each other. Unless the greatest caution be observed, fracture in this situation may pass unnoticed.   Occasionally any displacement is so entirely wanting, that it is necessary to hold the part just above the injury firmly with one hand, and to press the lower part firmly backwards with the thumb and fingers, when the acute pain with a very slight crepitus show the existence of fracture."—P. 51.

Mr. Ormerod thus describes the plan adopted in Mr. Lawrence's wards for preventing the bones from projecting unduly forward after fracture of the leg, situated low down.

" The leg is placed in the bent position on the outside, with a common side splint placed above and below, slightly hollowed out to fit the leg.   In addition to these, two straight splints are used, padded on one side, one of sufficient length to extend from the patella to the upper part of the lower-third of the leg, the other long enough to reach from the hollow of the knee to beyond the heel. If the straps be now passed round the leg, including the shorter of the two straight splints on the front, and the longer splint on the back of the leg, along with the two hollow splints on the upper and under side, the tibia and fibula above the fracture will be pushed backwards, whilst the foot with the part below the fracture is pressed forwards.   In this manner the tendency of the tibia to pass forwards, after simple dislocation or fracture near the ankle, is effectually prevented."—P. 52.

Dislocation of the Thumb.—The difficulty which sometimes occurs in effecting the reduction of this, must be known to most of our readers.   Mr. Ormerod states that the suggestion offered by Mr. Wormald, some years since, of making the extension with the elbow and wrist, as well as the metacarpus and joints of the thumb, considerably bent, has been put into force at St. Bartholomew's with the best results.   Not only is the reduction more easily operated on than when the parts are kept extended, but cases have been in this way sometimes reduced which were otherwise irreducible.   The patient should be seated on a stool with his back to the surgeon, and the bent arm and hand brought over the shoulder and behind the neck while extension is made.   Other cases, however, resist all means whatever.   The difficulty in some of these seems to have been produced by the interposition of the tendon of the flexor longus pollicis.   To illustrate this point, Mr. Stanley performed the following experiment on a dead body :

" An incision was made across the distal joint of the thumb, resembling that occurring in compound dislocation.   The sheaths of the tendon and lateral ligaments were divided, whilst the tendon of the flexor longus was allowed to pass behind the middle phalanx, and consequently between the two bones at the joint which was dislocated.   Great difficulty was now found to exist in reducing the dislocation, which was found to increase in proportion as the sheath of the tendon was divided higher up, and the tendon allowed to pass behind the phalanx

higher up, and consequently more directly through the middle of the joint. When, by lateral twisting, the tendon could be brought round the extremity of the bone to its natural situation, the part was immediately reduced; so difficult however was the reduction, that it was only by three persons trying with all their force, one after another, that the thumb of a dead man, artificially dislocated, could be reduced."—P. 67.

Discharge of Serous Fluid from the Ear in Fracture of the Skull.—Our readers are aware (Med. Chir. Rev. N. S. VI. p. 547) that this subject has of late excited some attention and speculation in the French medical journals. The cases therein related were uniformly fatal; but Mr. Ormerod alludes to examples in which the patients sufficiently recovered to leave the hospital. In 13 cases of injury of the head either blood or this serous fluid flowed from the ear; and, of these, seven recovered and six died. Of the seven, two suffered from the watery discharge and five from bleeding. Of the six fatal cases, two had bloody and four watery discharge. As in the French cases, the petrous portion of the temporal bone was always found broken on the side upon which the discharge occurred; but it is not stated whether in the instances of serous discharge the fracture was in the form of a mere fissure, through which M. Laugier supposes the watery portions of the blood to filter—a very lame explanation it must be admitted.

Treatment of Enlarged Subcutaneous Bursæ.—"When matter has formed in them, the only means is the evacuation of the fluid by a free opening: this is unattended with danger, and followed by a rapid and complete cure. When, however, the bursa is recent, the skin thin, and the fluid probably a mere increase of the natural secretion of the cavity, the employment of blisters, or the external application of the tincture of iodine, is the best means of lessening the swelling; but it will probably return. For a complete cure, or in those cases where the swelling does not yield to the application of blisters, or to the external application of iodine, more especially if the swelling be not large, the best plan of treatment is to introduce a fine thread through the swelling, and use it as a seton. On the second day this thread generally causes considerable pain, and requires withdrawal. A small quantity of puriform fluid passes for a few days through the opening, after which the swelling gets gradually less, and contracting, is completely cured. Very frequently the bursa suppurates so freely as to require a free opening, the hole for the thread having closed. Although this is an extra source of pain, yet the cure is more complete, and quite compensates for this accident. Removal of bursæ simply for their inconvenience is a serious matter."—P. 90.

In his Chapter on *circumstances influencing the convalescence of patients,* Mr. Ormerod enters into an examination of some of the causes of death in the surgical wards. Prominent among these stands the *prior intemperate life of the patients.* Some have been great beer, and others spirit drinkers; and both classes, although in different modes, find themselves ill able to contend with casual injuries however slight, although, prior to the occurrence of these, they might have deemed themselves in good health; and, indeed some of the large beer drinkers, as draymen, would be considered by most persons as very robust. Although the *granular liver* has attracted most attention as the disease of drinkers, Mr. Ormerod states, the two organic affections which are most to be dreaded in the intemperate patient of the surgical wards are the *granular kidney,* and slight but general em-

physema pulmonum, with a *dilated, but not always much diseased heart.*
" The kidney and the lung in these cases are not generally in an extreme
state of disease, but disease in a slight degree is very generally distributed:
thus there are no bladders or extreme emphysema of any one part of the
lung, but the cells in every part are more or less affected, whilst the kid-
ney is not contracted, but mottled and dotted in every part." The low
fever, again, which so frequently prevails in the metropolis, is another
cause of the aggravation of slight affections into serious or fatal maladies.
Under its influence a mere gonorrhœal excoriation may be converted into
sloughing phagedæna. In surgical diseases themselves, whether of a se-
rious kind, such as compound fracture, or of a more trivial description as
in simple injuries, the concomitant febrile action may take on all the cha-
racters of low fever, rendering the administration of support as necessa-
ry, but less useful, as in simple low fever. The post-mortem changes
observed are also alike in the two diseases, except that, in the surgical
disease, slight but extensively diffused organic changes are found, as well
as the more transitory ones induced by fever.

" The three chief affections destroying patients after operations and injuries—
the general habit produced by drinking ; secondly, organic disease in the lungs
and kidneys, especially emphysema in the former, and granular disease in the
latter; and thirdly, tubercle—act very differently, and at different periods.
During the early period, and often for weeks after operations, patients labouring
under tubercular disease do well ; and it is often only at the absolute return to
health, rather than during the recovery from the operation itself, that the effects
of tubercle begin to show themselves. Organic disease produced by drunkenness,
and habitual drunkenness, act differently: the organic disease presses heavily
at every period, and may destroy life either early or late ; but the mere habits
of the drunkard show themselves chiefly at a very early period. The pa-
tient, who nearly sinks from his unsound organs within the first few days,
often lags on for days and weeks in danger; but the man who has simple deli-
rium tremens is taken ill directly, and often dies, but if he recovers from his
delirium, he generally gets well from the operation, and sometimes quickly."—
P. 101.

Amputation.—Mr. Ormerod thus states some of the reasons in favour
of the flap-operation, which seems at last to be displacing the circular so
long adhered to (why it would be difficult to explain) at St. Bartholo-
mew's.

" In the thigh and leg, after amputation, it not uncommonly happens that every-
thing looks well for a few days, but that then some matter forms, or the limb
jerks, or is hot, or the skin gets just a little tight at one part over the bone. In
these cases the flap-operation succeeds better than the circular, for it rarely hap-
pens that the skin of the circular operation can be got well forward again after it
has once begun to retract, or become tight, whilst the mass of muscle and soft parts
of a flap can often be brought down again after they have retracted very con-
siderably. In the thigh, puncture of the artery, above its division, is readily
avoided in the flap-operation, and cannot well be done in the circular. In
the leg, the artery may readily be punctured in passing the knife behind the
limb, and wounded above its division ; still this is no real objection to the flap-
operation below the knee, as the same accident may happen from the use of the
catlin. The rapidity of the flap-operation, as compared with the circular, is some
advantage, but the whole operation is not necessarily shorter, for the number of ar-

teries to be tied in the former case is generally greater than in the latter. During the last few years the double-flap operation has been performed upon a large number of patients at St. Bartholomew's by Mr. Stanley, and with the best result. In many of these cases, at their termination, the full soft condition of the face of the stump, the complete depression of the bone in the line of the union of the flaps, or beneath the front flap of the thigh, have been most marked, whilst the effects of inflammation. in rendering the stump tense, have been very much less than where the same accidents occurred after a circular operation. —P. 131.

Hæmatocele is very rarely found occurring *spontaneously*. We have cited some cases of this in our April number (p. 661), and Mr. Ormerod furnishes us with another. A man, æt. 71, was admitted with a large, red, fluctuating tumour on the right side of the scrotum. Three weeks before there was nothing remarkable in the part, when, after going to stool, he perceived a swelling which appeared to have arisen spontaneously, and was attended with no pain. It rapidly increased in size for two days, and afterwards more gradually. Thirty ounces of a bloody fluid were evacuated by a puncture, and when the man left the hospital, about six weeks afterwards, the testicle was of its natural size.

The contents of a hæmatocele may vary much in consistency, but it does not seem that this circumstance influences the rapidity of their absorption. Sometimes this takes place very rapidly. A man was tapped for a hydrocele, which then became converted into a hæmatocele. The blood was evacuated by a trocar in nine days, but the tumour was reproduced. Cold lotions were now applied, and in three weeks the scrotum was nearly its natural size.

The cutaneous veins of the scrotum are not in many cases the source of the bleeding ; for, although this may be sufficiently abundant to fill a large hydrocele in a few hours, there is little or no ecchymosis of the scrotum. These veins, moreover, are of but small size, so that, even in the case of inflamed scrotum, it is sometimes difficult to obtain blood from them. Again, supposing they furnished a sufficient supply of blood, would this find its way through the opening left by the trocar into the tunica vaginalis, rather than into the cellular tissue ? Judging from what takes place when the canula slips from the aperture into the tunica during injection, we cannot suppose so.

" Where does the blood really flow from in these cases ? It flows rapidly, without ecchymosis of the scrotum, and often flows again and again, if it is repeatedly evacuated by the trocar. Three sets of vessels may pour out blood under these circumstances. The vascular lining of the tunica vaginalis has appeared on dissection to have been the source of the effused blood (Ed. Med. and Surg. Jour., v. 38, p. 325,) in addition to which the plexus of veins on the cord might readily pour out blood, as in the case of spontaneous hæmatocele already related. In addition to these vessels inside the sac, there is another set of vessels distant from the skin, large in size, close on the tunica vaginalis, quite out of sight, and more or less closely connected with the spermatic plexus of veins, which is very sparingly supplied with valves. If, in the dead body of a person, labouring under hydrocele, an incision be made over the ring, and the hydrocele be pulled out of the scrotum, the cutaneous veins and skin are left, and the cord with the hydrocele is lifted up. But the hydrocele is not bare, but running on its surface, and almost in its coats, may often be seen veins of considerable size not passing to the perineal veins and the cutaneous veins of the thigh, but,

connected more or less with the large veins of the cord itself. Here is a possible source of blood, which the eye would not detect, and which might pour out blood under those very circumstances, which are not clearly explained, if the blood be supposed to come from the cutaneous vessels of the scrotum alone."— P. 162.

The Administration of Food by Enemata.—Perhaps this mode of conveying nutrition into the system in cases in which the patient either cannot or will not swallow, is not sufficiently resorted to, although, truth to say, the examples of its efficacy, in cases in which it has been employed, are not sufficiently numerous to afford much encouragement. Mr. Ormerod, however, furnishes a well-marked one. "A man of about 20 years of age was admitted with his pharynx opened and the glottis exposed. He was unable to articulate, and vomited frequently through the wound, for an hour and a half, fluid mixed with blood. On the 2nd day he had an enema of milk. From the 2nd to the 41st day he took daily, in three enemata collectively, two pints of broth made from rather more than one pound of beef. His hunger was always appeased by the enemata. When his bowels were confined some salt was added, which was sufficient to open them. Once some wine was added to the injection. On the 41st day the injections were omitted, and food was given by the bowels (?) On the 51st day the wound was nearly healed, and the man looked well, and in tolerably good condition. He could however only speak in a whisper."

TREATMENT OF SYPHILIS.

Nearly one-third of Mr. Ormerod's work is occupied with the Essay on the Comparative Merits of Mercury and Iodine in the Treatment of Syphilis, which obtained for him the Jacksonian prize. It is a valuable record of the practice of St. Bartholomew's, where a large number of beds, considerably more than a hundred, we believe, are devoted to the reception of venereal patients. We are glad to find that the surgeons of that hospital still hold fast to their faith in mercury, convinced as we are that a more mischievous practice does not exist than that of attempting to treat the disease without it. Mr. Ormerod seems to us to have estimated the value of the two drugs very fairly, and to have well deserved the award that was made him. He properly insists, in his first chapter, upon the entire removal of the *induration* before the cure can be considered complete; but we have not been in the habit of attaching so much importance to the *local* use of mercury as he does.

" When the ulcer is running its usual course, is still unhealthy on its surface, and presents all the signs of progressive disease, the local application of mercury in certain forms is generally attended with the best results. So frequently, and with such decided benefit, has it been applied while the sore was still spreading, that it has appeared to be one of the most powerful means in correcting the unhealthy condition of the primary venereal ulcer with induration, and converting it into a healthy granulating sore; and, notwithstanding the descriptions of the bad effects of local mercurial application to ulcerating sores, opportunities occur, from time to time, in which one may observe the greatest benefit not unfrequently

following their application.   *   *   *   *   *   *   *
*   *   *   *   * The application of mercury in a fluid form to
indurated ulcerating sores, appears to act more beneficially than when mercury
is employed in the form of ointment. It is applied more equally and easily, and
only needs occasional renewing. The black and yellow washes are both thus
employed: whilst, however, the latter is generally applied to ulcerations of the
integuments in secondary syphilitic affections, the former is generally applied to
primary ulcerations of the genital organs and parts round. For these reasons
the application of mercury to the primary sore, in the ulcerated stage, is best
performed by employing that substance in solution, as in that form it comes into
accurate contact with the diseased surface. When, however, the ulceration has
healed, the employment of mercurial lotions is not attended with such decided
benefit, on account of the entire condition of the skin over the indurated part.
*   *   *   *   *   *   * To indurations on the mucous
membranes or integuments of the genital organs, after all important inflamma-
tion has subsided, the strong mercurial ointment may be applied with the greatest
advantage. If a portion of the ointment be occasionally rubbed on the hard
part, and a piece of leather covered with it be constantly applied, a decided dimi-
nution is sometimes observed to occur in the size of the part."—P. 214.

Because a case is of old-standing and obstinate character we are not to
have recourse to violent courses of mercury; the medicine must be then
mildly administered for a very long period. Some of the best examples Mr.
Ormerod has seen of its succeesful application have been in certain cases
under Mr. Lawrence's care, in which small doses of *hydrarg. cum creta*
were continued perseveringly. When the quick and decided influence of
mercury is required, or its effects on the bowels feared, *frictions* form the
best means of employing it; but, in the majority of cases, the convenience
of the *blue-pill* will secure it the preference. In the *phagedænic* form of
ulcer the mercurial action should be rapidly induced by calomel and opium,
as recommended by Mr. Lawrence. Some of these cases in the wards of
that gentleman have improved as rapidly after the induction of mercurial
action as cases of syphilitic iritis. After the phagedænic action is checked
the cure may be completed by a milder preparation; and in these cases,
in bad and unhealthy subjects, where the sore after a while becomes sta-
tionary, the hydriodate of potash with sarsaparilla and a good diet may be
advantageously substituted, the patient being removed also into a purer
ward. Certain phagedænic sores, attended with and maintained by a high
degree of surrounding inflammation, require to be treated with local de-
pletion and purgatives; while in other feeble, haggard patients, present-
ing instances of nervous rather than vascular disturbance, wine and opium
are indicated. So successful has mercury been found in treating the
various primary sores at St. Bartholomew's that iodine has been but little
used, and apparently with no great advantage. It seems, however, to aid,
when added to sarsaparilla, in recruiting the exhausced frames of certain
patients in whom the disease has long lingered and become combined with
secondary symptoms.

Among the great number of *secondary venereal affections* seen at St.
Bartholomew's, those of the *skin* predominate. The papular and scaly
eruptions, with an irregular mottling of the skin, are the most common;
next the tubercular and pustular; and lastly, the phagedænic pustular
disease termed rupia. Vesicular eruption is seldom if ever seen. The
papular eruption in its earlier stages requires antiphlogistic proceedings,

after which, mild mercurials, to the extent of just touching the gums, form the most efficacious treatment. The warm-bath and in some cases good diet and tonics are valuable adjuvants. Iodine is certainly less efficacious, and in obstinate cases very much less. In no form of disease is medicine so markedly useful as mercury in *scaly* syphilitic eruption. So useful is it that iodine has rarely been tried. This, however, possesses considerable efficacy when the affection is but slight. Syphilitic *tubercular* eruption, when the patient's health is good, will also yield to a mild mercurial course ; but in the mildest form, and when the patient's general condition is unsatisfactory, iodine is preferable. Mercury too, is adapted for the *pustular* form, when the patient is not feeble, and there is no disposition of the pustules to degenerate into ulcers; but it requires careful watching. The *secondary ulcers of the skin,* which are met with chiefly in the most wretched class of patients, who have employed neither care nor cleanliness, and whose general health is more or less ruined, have been attributed by many to the employment of mercury. This, Mr. Ormerod considers an erroneous view, believing that a cautiously conducted course of mercury has no tendency to produce them, admitting, however, at the same time, that mercury given rashly or at random, and the patient exposed the while to every injurious physical influence, may induce their formation. They usually present themselves under three different forms. They may be seen (1) as numerous small round ulcers scattered over various parts of the body, being usually accompanied by other secondary symptoms. The patient's health is not generally sufficiently bad to prevent the cautious administration of mercury, which, with the local use of the yellow wash, will usually effect a cure. 2. Large, semicircular, phagedænic, shallow ulcers form the symptom for which iodine may be most advantageously given. 3. Round, excavated ulcers, occurring in small numbers, or singly, attended with great pain, and sometimes extending very deeply. Opium, nutritious diet, and iodine are here indicated, the blackwash often forming a suitable local application. In the different ulcers mentioned, various measures one after another are tried in vain in some cases, and in such, the corrosive sublimate gr. $\frac{1}{12}$ ter, continued for a long period, sometimes succeeds where everything else has failed.

We must pass Mr. Ormerod's account of these medicines in the other secondary symptoms more rapidly under review. *Ulceration of the throat* is upon the whole better treated by mild mercurials than by any other measure. In the *excavated ulcer* this is especially the case, if cinnabar fumigation be simultaneously used. Iodine neither cures so rapidly nor so completely as mercury. In a class of cases which combine the appearances of excavated ulcer of the fauces and sloughy ulceration of the pharynx, the local use of cinnabar, and the internal employment of iodine form a very successful mode of treatment. Persons labouring under sloughy or foul ulcers generally require good diet and wine or porter, and, in such, iodine is of the greatest service. Since iodine has been employed in these cases, fumigations have been much discontinued. Where, however, the object is to clean the sore very rapidly, other means having failed, and the patient is strong, fumigation will often be still found a valuable means ; although its administration requires care in consequence of the ease with which a profuse and injurious salivation may be induced by the

application of the cinnabar to a large sore. In *ulceration of the larynx*, iodine, conjoined or not with mercurial fumigation, is a most valuable medicine. The patches of *ulceration* seen on the *tongue* are relieved by the mercury which is indicated for the fissures of the lips and scaly disease of the skin which usually accompany them. In a form of ulceration of the edge of the tongue and corresponding portion of the cheek, exactly resembling that induced by salivation, iodine effects a rapid cure. Excavated ulcer of the upper surface of this organ is occasionally seen, and a slight mercurial course is the appropriate remedy. The *fissures* occurring at the edge of the tongue often heal readily to recur again and again. They must be treated by iodine or mercury, according to the accompanying symptoms, and if these do not exist, by a mild course of mercury.

Hernia Humoralis is usually of simple treatment. After the acute stage has been checked by antiphlogistics in a day or two, the *hydrarg. cum cretâ* 2½ gr. ter, continued steadily, has been found of great benefit at St. Bartholomew's. The syphilitic testis generally yields very readily to mercury; but in some cases it may require careful persistence in its general and local use. Messrs. Lawrence and Stanley have found the application of the strong mercurial ointment or liniment to the scrotum, a very beneficial measure.

In respect to affections of the *bones and periosteum*, in no form of disease is iodine of greater use than in the dull aching *pains* of the long bones. It mostly relieves immediately or speedily, but if it does not do so shortly much benefit does not usually accrue from its prolonged employment. Since the introduction of this medicine, affections of the bones and periosteum have so frequently been cured, that incisions are now seldom called for. Cases, however, occasionally do occur in which these are advisable, others in which mercury is more useful than iodine, and others again in which neither medicine gives any relief. In *nodes*, unaccompanied by acute inflammation, iodine is a most excellent remedy. When the node is soft, mercurial ointment on a piece of soft leather, firmly applied over it, materially diminishes the swelling, and does not cause irritation or ulceration even if the skin be very thin. Sometimes this is so thin as to seem on the point of bursting; but we must cautiously avoid opening it in consequence of the troublesome ulcer which may result. Fluid and recent nodes admit of complete cure, while old bony ones are rarely if ever removed, although the pains accompanying them may be relieved. Iodine has been found very useful in *gonorrhœal rheumatism*, given after the constitutional irritation has subsided, or at once if this is not considerable. The cure, however, is not complete, the patient being long tormented by occasional pains, and it seems gradually only to wear itself out.

Cases of *syphilitic ulceration of the eyelids*, described by Mr. Lawrence in his treatise, are not so effectually treated by iodine as by a mild but effectual course of mercury. Sometimes the papular eruption of the skin extends to the *conjunctiva*, producing a very troublesome affection. The application of a few leeches to the lower lid much relieve the accompanying irritation. Iodine and mercury exert no influence apart from their action on the eruption of the skin. Although these cases usually do well, they are occasionally tedious and difficult of cure, the eyes being long left · in a very painful and irritable condition. Benefit is sometimes derived from

rubbing tartar-emetic ointment into the nape of the neck. Upon the vast utility of mercury in *Iritis*, we need not detain our readers, merely stating that in the *chronic form* of the disease Mr. Lawrence has found small, long-continued, doses of *hydr. cum creta*, frequently of the greatest utility. The same may be said of iodine in those cases in which mercury has disagreed or proved inoperative. Puriform discharge from the *meatus auditorius* is an occasional secondary symptom, yielding to mild mercurials.

Mr. Ormerod's last chapter contains a general summary of the results of his observations upon these two valuable medicines. In treating of *mercury* he properly lays great stress upon the power which its judicious administration exerts in the prevention of secondary symptoms. From his remarks upon the different circumstances which do and do not forbid its use we may extract the following :

" The state of constitution usually denominated strumous is by no means a positive contra-indication to the cautious employment of mercury; if such were the case the frequency of this condition of constitution among the lower orders would often prevent mercurial treatment. In patients whose constitution is weak, and presents the common general signs of scrofula, the employment of mercury is sometimes attended with very great benefit, the patients gaining a degree of flesh and strength under its use which they had not previously enjoyed."—P. 281.

The following is the author's general view of the utility of *mercury in primary* disease, his observations on secondary affections we have already quoted.

" The primary indurated, and the rapidly spreading phagedænic ulcers, the indurated cicatrices of old sores, and the glandular swellings accompanied with induration, but with very little surrounding inflammation, are benefitted so much more by mercury than by any other means, that its use is, if not necessary, at least most advisable. The same remedy, though less beneficial in the chronic form of bubo and ulcer, which lasts for months, and sometimes for years, is attended at times with success, and affords more chance of relief than any other means. The cautious employment of mercury in the treatment of a great mass of superficial sores and simple glandular swellings, whether suppurating or not, is attended with no danger, and leads to a good general result by curing a certain number of cases which simple means hardly touch. In acute inflammation of the glands, in acutely inflamed, irritable ulcers, and sloughing phagedæna, the employment of mercury is unattended with benefit, may do harm, and by taking the place of appropriate treatment is to be avoided."—P. 233.

In respect of *Iodine* we have the following remarks :

There does not appear to be at present any very clear proof of the efficacy of iodine in primary disease. This medicine, it is true, has been only partially tried; but the want of any repetition of these trials is a strong argument against the good result derived from its slight use. The greatest advantage derived from iodine in primary disease is seen in the treatment of patients, who from large quantities of mercury, or long standing primary disease, to which secondary symptoms may even be added, are reduced in health. To such, the employment of iodine is certainly beneficial, and aids in restoring them to moderate health. The foul condition of some superficial sores is at times relieved by the employment of iodine, but the local application of the tincture to parts in which considerable swelling and inflammation exist, is sometimes attended with serious injury.

" This small benefit derived from the use of iodine in primary disease is, however, quite compensated for by the advantage gained from its employment in

secondary affections. The painful affections and swellings of the bones and periosteum, gonorrhœal rheumatism unaccompanied by much fever, single, foul, phagedænic sores, and large phagedænic sores scattered over the body, are relieved by iodine in a more rapid and a more certain manner than by any other means. Ulcers of the skin, from previous venereal eruptions of any kind, occurring in patients of reduced health, but more especially those following the tubercular and pustular forms, and the conical crusts of rupia, are healed by the internal administration of iodine. The same means have also been found useful after the employment of mercury in the treatment of iritis, as well as in the removal of the protrusion of lymph, which in some cases of iritis perforates the sclerotic at the margin of the cornea. In the papular and scaly eruptions sufficient benefit has followed the employment of iodine to recommend its use, where mercury is objected to, but not enough to render its adoption advisable in preference to that remedy.

" Such are the principal individual symptoms which are relieved by iodine ; but the bare enumeration of them conveys but a faint idea of the value of this remedy. These symptoms are some of the most serious and obstinate that occur in syphilitic disease, and which are relieved but little by mercury. These, in fact, are the affections for the cure of which the most varied measures have been introduced at various periods, all of which have enjoyed more or less reputation. The employment of iodine, however, has been attended with greater and more uniform success than any other remedy, except mercury, which has ever been introduced for the treatment of venereal diseases. Those affections which yield least to mercury, and that condition of health which succeeds to long-standing disease and to the employment of very large quantities of mercury, yield to iodine in the most marked and decided manner."—P. 290-2.

This is strong testimony, but we believe not stronger than deserved. The opinions of MM. Gibert and Payan upon the subject will be found in the Foreign Periscope of the present Number.

Hydriodate of Potash is the preparation of iodine employed at St. Bartholomew's, and it is prescribed in doses of 4 or 5 grains ter.

In concluding our notice of Mr. Ormerod's " Clinical Collections," we may again repeat our opinion that the work does him great credit. It supplies a good and long-wanted account of the practice prevailing in the surgical wards of one of our largest hospitals, and may be advantageously perused by both student and practitioner. Without sympathizing with that hypercriticism which insists upon elegance of medical literary composition, we must still regret that the verbal repetitions and neglect of relative pronouns somewhat mar the pleasure of reading a work otherwise so excellent. This is no doubt due to hasty composition, and may be rectified in another edition.

RECUEIL DE MEMOÎRES DE MEDECINE, DE CHIRURGIE, ET DE PHARMACIE MILITAIRES. Vol. LX. 8vo. pp. 390. Paris, 1846.

THERE are two or three papers in the new volume of these Memoirs of Military Medicine an account of which we think will prove acceptable to our readers. The first of these is

ON THE CLIMATE AND DISEASES OF ALGERIA. By Dr. CASIMIR
BROUSSAIS.

Few lots are more deplorable than that of the soldier in French Africa.
Forced by the tyranny of the conscription from his own fine country into
one abounding in fever and other fatal disease, he finds himself engaged
in a description of warfare of the most harassing kind, in which success
is accompanied with neither honour, emolument, nor a temporary cessation
of toil and suffering. We read that, when the French soldiers were aware
that Ambrose Paré, and in later times the excellent Larrey, was on the
field of battle they entered into the engagement with zeal and eagerness,
well knowing that, in the event of casualty, ample provision for it was at
hand. What must be the reflections of the poor fellows in Algeria, know-
ing as they do too well that their hospital accommodation is wretchedly
defective in quantity and quality, and that hundreds and thousands of their
sick comrades perish in consequence of this and of the hasty removals the
nature of the warfare carried on submits them to. Dr. Casimir Broussais,
it is true, in this paper says little of these things. High in office, and
remaining for a year only in charge of one of the hospitals at Algiers, where
possibly all that was required was found, he probably had neither the op-
portunity of observing the full extent of these disasters, nor the desire of
speaking truths of this kind, which are found to be so unpalatable to the
authorities at home. Communications, however, received in France from
medical officers, actively engaged in the perils of the campaign, dilate upon
the dreadful hardships they and the men under their care are subjected to,
and the callous indifference and neglect with which their representations
are received. Never was waste of life more wanton and unjustifiable than
in this insensate and futile attempt at the conquest of Algeria !

In the mean time, however, we must not neglect any improvements in
medical knowledge derivable from the consideration of these calamities :
and we are paying the medical service of Algeria but a just compliment,
when we say that it seems unanimously actuated by a fervid desire of bene-
fitting the poor objects of its care and extending the bounds of medical
science. Dr. Broussais' paper is an interesting one, and we will briefly
glance at the most important points it touches upon.

The French medical officers have justly paid much attention to the
meteorology of Algeria. It seems the maximum of *temperature* is not at
2 P. M. as in Europe, but at 11 A. M. The mean temperature of the year
at 6 A. M. is 65° F. and reaching 72° by 10, it scarcely afterwards exceeds
this. It gradually diminishes, and at 10 P. M. is nearly the same as at
6 A. M. The nights are not cold, the thermometer not sinking below 62°
or 63°. How are we to explain then those remarkable transitions from
heat to cold which are described as occurring during the passage from day
to night in hot countries ? These contrasts do not exist in the tempera-
ture when observed in the shade, but in the great differences of the tem-
peratures taken in the sun and in the shade or at night. "Upon making
the experiment I found the difference observed at the same hour to be enor-
mous. Thus, when the temp. was 68° in the shade towards the north,
and from 77° to 87° in the sun with free access of air, it was from 122°

to 142° in the sun, sheltered from the wind.   It is to such transitions the
soldier is exposed when on his march through the inequalities of a moun-
tainous country."   The *barometer* is generally high and liable to few os-
cillations.   There are usually 200 fine clear days in the year, without cloud
or rain ; and but 50 wet or partially wet ones.   When rain does come,
however, it descends in true torrents.   The wind blows ordinarily from
the W. or NW.   Storms are rare.   The *summer heats* are of excessively
long duration, four months passing without one drop of rain.   The mean
temperature in the shade is then about 82°, frequently rising to 85° and
95°, and but seldom to 105° and 113°.   Without the sea-breeze this heat
is insurmountable.   It is under a privation of this, and towards the end of
the summer, in September, or even October, that the terrible *Sirocco*
prevails.

"As soon as it arises the heavens become of a grey or reddish colour, and the
horizon is darkened.   The air is loaded with dust, which is hurled along from a
distance to the sea, above which it forms a greyish cloud.   If a window is opened,
air as hot as that from a furnace fills the room, imparting a pricking sensation to
the body, and a burning one to the eyes.   When you go out it is just as if you
entered a heated stove.   In vain do you open your mouth and make repeated
efforts at inspiration.   The air which enters your lungs seems only to suffocate
you.   You seek for the vital element, but it is not there.   You exhaust yourself
with vain efforts ; your head is confused ; you are as if intoxicated and overcome
by an indefinable feeling of fulness ; you are rendered unfit for every occupation
or thought, insensible to every feeling but that of your own misery—I can only
compare the indifference to oneself and others which is then felt, to that moral
self-abandonment which sea-sickness induces.

"When this terrible wind arises suddenly and surprises a column on the
march, the soldiers instantly stop, sink down as if under an intolerable burden,
and remain on the route, notwithstanding the risk of being surprised by the
enemy.   More than once, one of these unfortunate fellows has become the vic-
tim of so intolerable a sense of uneasiness that he has become instantly dis-
gusted with life, and has blown out his brains, before even his absence from the
ranks was observed or his intention suspected.

"Sometimes the tempest of the sirocco becomes furious.   It is then pre-
ceded by a hollow rumbling, and rushes on with a frightful rapidity, roaring
louder and louder, raising the sand like a water-spout, overthrowing every-
thing in its way, carrying away with it the roofs of houses, tents, and huts,
uprooting trees, and leaving nothing standing.   The animals fly for shelter, the
camels bend their knees on the sand, and man casts himself down on the ground :
for all that will not bend are destroyed.   More than once our troops, marching in
the large vallies open to the south, have encountered these disasters."

Whole clouds of locusts sometimes accompany the sirocco, surrounding
and covering every thing and person, utterly destroying the vegetation of
the portions of country they pass over, until carried off by the violence of
the winds which brought them.   Ordinarily the sirocco soon passes away
and those subjected to it quickly regain their usual state of health.
It rarely continues an entire day ; but during its prevalence pernicious
fevers are easily generated, and the condition of the sick becomes danger-
ously aggravated—as also does that of those who seemed to have entered
upon a prosperous convalescence.

The *Winter* in Algeria is to be dreaded rather on account of its humidity
than its temperature.   Snow is rarely seen, except in some of the moun-

tains, and the rain only occurs at intervals, but then in immense quantities.

The abstemious habits of the Arab are well suited to the climate he inhabits. When the European arrives during the temperate season, abundant exercise and delightful air excite a vigorous appetite. This he indulges not only with fruits and vegetables like the natives, but also with large quantities of animal food. Digestion being vigorous, all this seems easily disposed of; but when the hot weather arrives, nature warns us by the diminution of appetite to be more cautious, both as regards quantity and quality of food. She is too often unheeded, and the flagging stomach is excited beyond its powers by means of various stimuli, especially absinthium. Diarrhœas and dysenteries are produced, and if the regimen is not altered, become serious and persistent, and pave the way, by shattering the constitution, to the access of intermittent fever, which does not attack more than 1 in 30 of those who have not already suffered from flux. Owing, however, to greater care than heretofore, in this and other hygienic particulars, the mortality of the army has become reduced from 143 in the 1000 in 1840, to 60 per 1000 in 1843. The mere action of prolonged heat, however, suffices to enfeeble the constitution. The functions of every organ, except two, are diminished in activity, and these are the skin and liver, the amount of the secretions from which causes a great loss to the economy, and implies an activity of the secretory organs which explains the occurrence of much of the disease of the skin, liver, and gastro-intestinal membrane. The great losses by secretion might be expected to give rise to an impoverished condition of the blood; and, in fact, the physical appearance of the patient, the difficulty with which hæmorrhages are borne, and the chemical analyses of MM. Leonard and Foley, prove this to be the case.

Diseases of Algeria.—" If the pathology of Algeria has many points of contrast with that of France, it has likewise its own distinct phenomena. Thus, of a given number of men, there are a greater number fall ill in Algeria, and a larger proportion of these die, though much fewer now than heretofore; but what is most characteristic, is the striking correspondence of the diseases with the seasons, and the nature of each morbid manifestation. This is seen in extreme climates, and in Algiers, which is nevertheless intermediate between these and temperate ones. I was told that, as I went to Algeria in the winter season, I should only find there the same diseases as in France. This is a mistake. I visited the three military hospitals there in December, and was at once struck with the general aspect of the patients, presenting as they did different affections from those I had just left at Paris. I found a great number of miserable, exhausted, languishing frames, crowds of poor creatures undermined by diarrhœa or chronic dysentery, or swollen by dropsies. The countenances of such as were less seriously affected had that wan, yellow, or leaden appearance, characteristic of those who have been the frequent subjects of intermittent fever. It was impossible for me not to recognise here the marks of the diseases peculiar to Africa, and it is not requisite to await the epidemic season to distinguish their prominent characters. By the side of these characteristic endemic types, were to be observed cases of sporadic diseases entirely analogous to those which I had treated a fortnight before at Val de Grâce."

At the commencement of the year the hospitals are filled with the cases remaining over from the hot season, and get gradually cleared as these die

off or are discharged convalescent. It is not until June that the number of new patients notably increases, which it continues to do until August, when it attains its maximum.   Official statements inform us, that the mean number of admissions into the entire Hospitals of Algeria for the first three months 1840-3 amounted to 13,720, and for the month of August alone to 11,809.   The admissions in December were only 5,678. The same statements show, also, that the number of sick exceed those of the effective force by one-fifth, so that 50,000 men furnish 60,000 patients per annum !—not that all the effective force enters the hospital, but that a certain number does so several times.   The general mortality of the troops (1845) is 80 per 1000 on the sick, and 94 on the effective force—it having been 143 in 1840, and 60 in 1843.

The Diseases of Algeria have been properly divided into those which are *sporadic* and those which are *endemo-epidemic ;* the former being the same as observed in Europe, the latter proper to the country.   These last consist of intermittent and remittent fevers, diarrhœas and dysentery with hepatitis.   Their prevalence commences in June, and rapidly increases until September, when it attains its maximum.   In his enquiries concerning the proportion of soldiers who resisted the endemo-epidemic influences, Dr. Broussais found that of 100 men entering the hospital, 20 had had fevers, 20 diarrhœa or dysentery, and 54 fever and either diarrhœa or dysentery, only 6 escaping all climacteric influence, and indeed only 3, for the other three had not yet passed a year in Africa.   It is, indeed, scarcely possible for any one to live even a few months in Algeria without suffering more or less from diarrhœa and dysentery—so universal are their prevalence.   Several, however, escape fever, even after more than a year's residence.   Other persons, during the hot season, have attack after attack with little interval, and may carry the seeds of a relapse back with them to France.   After repeated attacks, dropsy and other diseases result, which usually terminate in death ; but the recovery of some of these cases, on a return to Europe being allowed, has seemed almost miraculous.

Dysentery and Diarrhœa.—There were 367 cases of acute abdominal flux admitted into the Hospital in 1845, of which 162 were examples of dysentery and 205 of diarrhœa.   The whole of the latter recovered, but 11 of the former died, being 66 per 1000, a vastly different proportion to the deaths from chronic dysentery, which amounted to 50 per cent. Among the cases the usual varieties of the disease were observed.   "We are quite willing to designate these by the usual terms and call them inflammatory, bilious, pseudo-membranous, hæmorrhagic, and choleric or adynamic dysentery; but we see in them all but different forms and different degrees of one identical disease ; for in all of them we find the symptoms indicative of an internal phlegmasia, and in the fatal cases the marks of this colitis, while the treatment, with certain modifications, is the same in all."   The treatment pursued was of the antiphlogistic character   A general bleeding was found of great service in severe cases, although its repetition was seldom required or would have been borne. Repeated local bleeding in the painful regions was very advantageous.   To these measures were added hip-baths once or twice daily, small cold lavements of infusion of linseed and poppy-heads, or of simple water when

the abdominal heat and thirst were great, tisanes formed of rice-water and gum, or lemonade and gum, and mild opiates; and the cure of the case was usually rapid. " When the disease was a *mild dysentery*, or mere *diarrhœa*, we contented ourselves with the regulation of regimen, and the supplementary treatment just detailed, without depletion. In these cases, the *sulphate of soda*, in doses of from 4 to 8 drachms *per diem*, was often advantageously given. This salt is indicated when a marked abdominal gurgling is heard, unaccompanied by heat or remittence, and in such cases it accelerates the cure. But, just like narcotics, it is powerless against a violent diarrhœa or dysentery, which, if given during the acute stage, it will only aggravate. In the treatment of that serious and so often fatal affection, *chronic dysentery*, a feculent regimen, emollients and narcotics were resorted to. Flannel clothing was found of great service, as also were frictions of tartar-emetic ointment, perseveringly applied. In spite of all measures, great numbers of the patients sank. In the analysis of the *blood* in *dysentery*, by MM. Leonard and Foley, it was found in some cases to have retained its normal characters, but in most to exhibit an augmentation of fibrine, and a diminution of globules, and of the solid materials of the serum. We regard these changes, with Andral, Gavarret, Becquerel, and Rodier, as consecutive; for they were never found at the onset of the disease, but only when it had made some considerable progress. As these changes resemble those produced in inflammation, they indicate that the dysentery should be treated as an inflammatory disease."

Hepatitis and Abscess of the Liver.—MM. Hassel and Catteloup have shown the intimate connexion of hepatitis and abscess of the liver with dysentery. (*See Med.-Chir. Rev.* Jan. 1846, p. 65.)

" We firmly believe in the reality of such coincidence, which has in fact nothing surprising in it, since we have seen, on the one hand, the climate influences undue increase of the biliary secretions, and on the other, the intestinal canal is disposed to diarrhœa. We have endeavoured to show, in a memoir upon this subject, published in the *Journal de Medecine, Aug.* 1845, that by percussion in the hepatic region, and consideration of the seat of pain, and of the disordered state of the biliary functions, we may often arrive at a diagnosis of hepatitis, which a superficial examination would have overlooked. But we must admit, that with every care, the most attentive practitioner may sometimes be surprised at the discovery after death, of a hepatic abscess which was not suspected during life. Among the 686 fever patients admitted during 1845, there were 43 cases of hepatitis, 5 of whom had abscess. The deaths amounted to 7; but this high mortality would give a false idea of that of hepatitis in general, if we did not bear in mind, that many patients who were admitted for fever, diarrhœa, or dysentery, were affected with various degrees of hepatitis which terminated by dissolution."

Intermittent and Remittent, and Pernicious Fevers.—Dr. Broussais' observations under this head, extend to a considerable length; but as we treated somewhat at large upon the fevers of hot climates in our last number, we will confine our attention to one or two points in the present one. The author arrives at these conclusions: " 1. That intermittent and remittent fever prevails endemically in Algeria, and in Summer assumes the epidemic form. 2. That it is infinitely more frequent, more severe, and more fatal in marshy localities. 3. That the cause, whatever it r

be, which induces it, exerts its action first upon the nervous centres, and from thence upon the other organic apparatuses, especially upon that of digestion."

In slight cases of intermittent fever, Dr. Broussais has found, both at Paris and Algiers, the administration of *cold larements*, either with or without the use of quinine, an excellent means. They seem even to have the effect of preventing an access of fever, which the heat of skin, especially of the abdomen, headache, uneasiness, and loss of appetite, proved to have been imminent. For such patients it has often sufficed to diminish the amount of their food, and administer a few cold injections, to entirely restore their health in a few days.

In respect of the treatment of the worst forms of remittent or pernicious fever, we have the following remarks :—

" According to what I have seen and heard in Algeria, most of the French practitioners have recourse to general and local bleeding ; some, however, employing it with confidence, and relying much upon its association with an antiperiodic medication, and others resorting to it with reluctance, and with much doubt as to its utility. It soon became evident to me, upon my arrival in Africa, that not only is bleeding useful in intermittent, and especially remittent fever, but that there is no disease or country in which it is of such efficacy as in these Algerian fevers. It, so to say, relieves the disease in a few hours, save where there is serious inflammation or changes of structure, and it forms an admirable preparative for quinine. I have frequently seen this drug quite inoperative until some leeches or a bleeding have removed the complication which proved an obstacle to success. Notwithstanding the great efficacy of bleeding, I have not resorted to it in all cases ; but when the patient has presented a weak faltering pulse, and other signs of collapse, I have at once ordered him a large dose of quinine, often with æther, employing revulsives at the same time. These last are highly useful in the comatose and algid forms of the disease, but only as adjuncts to other measures. As to *quinine*, it has operated wonders, whether given alone or in combination with bleeding. When an inflammatory complication has existed, I have administered it immediately after the depletion, without waiting for the moistness and natural colour of the tongue being restored. The loss of blood seemed to enable the patient to pass at once from a state of disease to one of comparative convalescence ; and the quinine prevented or moderated the violence of the symptoms, which always manifested their tendency to return. Upon these points I may refer to the practice of Johnson and Twining in India, and the success which followed their free use of the lancet."

Sporadic Affections.—The only one of these Dr. C. Broussais dwells upon is *phthisis pulmonalis.* In 930 patients admitted from the 1st January to the 1st November, only eight cases of pulmonary tubercles presented themselves, giving one for 116 patients ; a proportion small indeed, compared with that observed in the military hospitals of France, where a case of consumption showed itself in every 41 patients, during 1831–44. Again, in 41 deaths, 2 only from phthisis are met with, or 1 in 20 ; while the proportion in Paris is 1 in 5.

" This disease is then, without any doubt, much less frequent in our African possessions than in France, and so great is the difference, that it evidently depends on the climate, no secondary circumstance being capable of producing it. But to render the difference still more striking, we must take into account the autopsies at which the patients, having sank under different diseases foreign to those

of the chest, tubercles are nevertheless met with. Common as is this case at Paris, we only met with three examples in Algeria. Still, rare as is phthisis, it does occur in Algeria, and may originate there. And not only may it do so, but also, in spite of a prolonged residence, the vicinity of marshy emanations, or the occurrence of numerous attacks of fever. The *antagonism* announced by Dr. Boudin is, in our eyes, an ingenious hypothesis, but, being destitute of foundation, it crumbles before exact observation. To complete this subject, we have to state the influence of the climate of Algeria upon the progress and cure of phthisis. Is its progress more rapid in Algeria? Certainly not, according to our documents. Is there a greater chance of cure than in France? The same documents reply affirmatively; for we have observed cures of circumscribed tubercle, and extraordinary amelioration in suppurating tubercle."

RESEARCHES ON THE CONDITION OF THE BLOOD IN THE ENDEMIC DISEASES OF ALGERIA. By MM. *Leonard* and *Foley.*

This forms an interesting complement to the paper just considered, and consists in a detailed account of numerous analyses of the blood in the *febrile diseases of Africa*, conducted in the same manner as those of MM. Andral and Gavarret were performed. Comprehensive tables, exhibiting the amount of the various component parts of the fluid, are given; but we can only find space for the general recapitulation of results.

" 1. The *fibrine* is found in its natural proportions at the commencement of the fever. 2. It is diminished by the influence of duration and relapse of fever. 3. The passage from intermittence to remittence, from the continuous to the pernicious form, does not produce an increase or diminution of the quantity in any constant manner. 4. The amount is somewhat increased if there be complications, leading to the conclusion that these are of an inflammatory character. 5. The congestion of organs, which takes place under the influence of fever, may in some few cases proceed to the extent of inflammation, and in this way give rise to an increase of fibrine. 6. The engorgement of the spleen, which is observed in intermittent fever, is only exceptionably coincident with a defibrinated state of the blood, contrary to what is met with in the typhoid state. 7. The proportion of *globules* is only exceptionably increased, its tendency being to remain stationary or diminish. 8. The diminution only takes place under the influence of the prolongations of the disease, relapses, and an enfeeblement of the constitution. 9. Although the instances of increase usually occur in the severe forms of the disease, we cannot establish a relationship between these two circumstances. 10. The *solid matters* of the *serum* have a tendency to diminish in quantity, and this equally with the organic and inorganic materials. 11. The diminution of the proportion of *albumen* is very marked; but does not take place to the profit of the fibrine or the globules. 12. The proportion of *water* is diminished only in some very rare cases. It generally is increased, and often very markedly so. It is so almost always at the expense of the globules.

" To what reflections do our researches give rise? It cannot be denied that the blood is submitted to modifications in its *crasis* during the course of these fevers. These modifications are such, that, interpreted as by pathologists who have preceded us in the examination of other diseases, they will explain the morbid phenomena observed at a certain period of the pyrexiæ, (viz. those which succeed to the acute stage, preserving only the febrile periodicity, which indeed may also have ceased,) and are exhibited in chloro-anemia, anasarca, ascites, scorbutus, nasal hæmorrhage, &c. The impoverishment of the elements of the blood, considered separately as to the effects each exerts upon the organism, ex-

hibits itself as regards the *globules*, by the general debility, the decolouration of the skin and mucous membranes, and certain disorders, of the circulation ; the *fibrine*, by the violet spots of the skin, the epistaxis, the scorbutic bleeding from, and sometimes the gangrene of, the mouth, and the muscular pains of the limbs: the *albumen*, in puffiness, serous infiltration, ascites, and perhaps that serous diarrhœa which, in persons exhausted by fevers, almost always terminates the above-named disorders of the economy. *   *   *   *   *   *   * *   *   *   *   *   *   * We must admit as conclusions—1. That the vitiation of the blood, such at least as it has been exhibited in our researches, can only be looked upon as consecutive, and as an effect of the disease. 2. That this vitiation, which is also manifested in other diseases as a consequence of their duration, as the beautiful researches of MM. Andral, Gavarret, Becquerel, and Rodier have taught us, presents no peculiarity in this description of affection, only inasmuch as it implicates, at the same time, a greater number of the elements of the fluid. 3. That if the development of the fever is the result of the poisoning of the blood, which we do not absolutely deny it may be, the presence of the principle causing it is yet to find, and we may just as reasonably attribute, in the mean time, the earliest symptoms indicating the existence of the disease, to a morbid modification of some of the apparatus of the nervous system. 4. That to a certain degree the same reproaches may be addressed to the humoral pathology as to the anatomical pathology of the solids; that it fails to entirely raise the veil which conceals the essence of the disease from our view. 5. That notwithstanding this, the knowledge of the change or the proportion of several of the elements of the blood, operated by the influence of diseases, should be looked upon as a real addition to that of the lesions which the solids undergo ; for it serves in some cases to clear up and explain the pathology of these latter. 6. That after the study of the fluids of the animal organism should come another, that of the laws by which that power which governs all the other systems of the economy acts. Little does it matter whether we call it vital power, innervation, plastic force or vital dynamism, provided it be examined by the procedures of philosophical experiment. The following sentence of Hippocrates will then receive its confirmation: ' We must consider in man not only the containing parts or solids, and the contained parts or liquids, but especially the active powers or the cause of vital movement.' "

CASES OF WOUNDS AND DISEASES OF THE BRAIN, WHICH TEND TO PROVE THAT THE FACULTY OF LANGUAGE IS PLACED IN THE ANTERIOR LOBES OF THAT ORGAN. By M. *Bonnafont.*

In the *first* of these, a musket-ball entered the anterior portion of the left temple, and passed out at the same point on the opposite side, having traversed the anterior lobes of the brain. Some of the cerebral substance passed out at the apertures. The soldier, at first insensible, soon recovered his faculties, except that of smell, and the power of articulation. He preserved his memory of things and facts, as well as his hearing, as was manifested by the signs he made upon various questions being asked him. Five hours after he became comatose, and died 18 hours after the receipt of the wound. In the *second* case the ball traversed the right anterior lobe from below upwards, as well as the upper portion of the opposite lobe. The wounded man heard what was addressed to him, and at every question made a kind of groan, but he had entirely lost the power of speech. He died the next day. *Case 3.*—A man about 50 years of age was admitted into the Nantes hospital as insane, and, although speaking

with difficulty, he could make himself understood, but his embarrassment of pronunciation increased, so that for 18 months before his death he was obliged, excepting two or three words, to express everything by signs. At the autopsy, an osseous tumour, the size of a large nut, was found in the left coronal fossa, which by its pressure had caused the disappearance of nearly the entire corresponding lobe of the brain, and a strong depression in the opposite one. The *fourth* case was that of a woman (æt. 55), who for several years had lost the power of speech, except for one word, which she incessantly repeated. At the autopsy, the two anterior lobes were found nearly atrophied and surrounded by a large quantity of fluid. The *fifth* case relates to the loss of memory properly so called, and not to the loss of the faculty of language. A sergeant was struck by a ball on the right parietal bone, its course seeming afterwards to be downwards and forwards towards the base of the brain. The attendants were surprised at hearing the wounded man reply at random to questions which were addressed to him. The reporter found he answered correctly enough when the question required no exercise of memory; but, in regard to anything which had happened, even a few days before, he made vain efforts to recollect himself. He continually exclaimed, "How strange it is that I should have lost my memory. He died the next day: but the urgency of affairs prevented an autopsy being made. *Case 6.*—A soldier (æt. 22,) was struck on the right temporo-parietal region by some fragments of rock during the explosion of a mine, which drove the bone in upon the contents of the cranium. He remained some days unconscious; and on coming to himself he was deaf and partially blind, and had lost his memory to such an extent as scarcely to recollect the cause of his accident. The sight was gradually restored, as also, by the aid of galvanism, the hearing; but his memory, which was once very excellent, so as to enable him to commit long passages to it, and though now (eight months) somewhat improved, continues very defective, so that he is obliged to make great efforts to recall any event which but the evening before had made a great impression upon him. Oftentimes he cannot recollect for very short periods what has been said to him, however great the efforts to this end he may make. His speech is fluent, but certain words, which he pronounced well prior to his accident, are now articulated with difficulty. The consciousness of his state much annoys this patient, for he can write words correctly which he cannot pronounce without great difficulty.

On Foreign Bodies in the Ear. By M. *Latour.*

These are numerous, and are naturally divided into two classes, those which are developed in, and those which are introduced into, the meatus. The latter class may be subdivided into bodies possessing spontaneous movements (insects) : 2, bodies susceptible of swelling or even germinating in the ear (peas, &c.) : 3, bodies of an invariable size (leaden balls, &c.) : 4, liquid substances, capable of exerting chemical action on the parietes of the meatus (acids, &c.) These divisions are not useless, and are much the same as those adopted by Paulus Ægineta and Ambrose Paré.

The *symptoms* are too obvious for transcription, in spite of which, how-
ever, the *diagnosis* is not always correctly made. A case is cited in which
a fruit-stone has been mistaken for a sequestrum of the temporal bone ;
while at other times the canal has been needlessly irritated in searching
for a foreign body which it did not contain. M. Velpeau relates a case in
which the worst consequences resulted from this. Such occurrences will
seem less strange when we recollect that few medical men habituate them-
selves to the exploration of the meatus. This would be unpardonable
neglect in the military surgeon, seeing the frequency with which this part
is made the seat of fraudulent attempts. The usual directions given for
inspecting the ear are valueless, and nothing but the *speculum* will suffice
in most cases. Its utility has been long recognized : for Fabricius Hilda-
mus gives us a figure of one little differing from that now in use. M.
Latour, however, considers the latter as too voluminous, and has contrived
a simpler, smaller, and less expensive one, which can be put into an ordi-
nary pocket-case. The sitting position is the best for its employment. The
pavilion of the ear is to be drawn backwards, upwards, and outwards by
the left hand, and the speculum gently introduced to the depth of from five
to seven lines by the other, according to the length of the cartilaginous
portion, the valves of the instrument rarely penetrating so far as the osseous
portion. These are then expanded as much as possible and the direct rays
of the sun, if obtainable, admitted. If not, we must have recourse to ar-
tificial light, employing reflecting lamps, or a silver spoon to concentrate
the light. The author has frequently concentrated the rays of a candle or
lamp by means of a lens. However obtained, the light should always be
directed obliquely on the valve of the speculum, for the eye cannot other-
wise explore the canal. If the wax is sufficiently abundant to intercept the
rays of light it must be removed by the aid of sweet-oil and warm-water
injections, or, if it is solid, by means of long thin forceps, having a piece
of cotton on their extremities. When we find the canal obstructed by a
foreign body, its nature may be often ascertained by *catheterism* of the
meatus, which indeed is the only procedure admissible when the canal is
anormally narrow, or its mucous membrane much swollen. In this last case,
leeches, emollients, or prepared sponge, must be employed for the dilata-
tion of the passage, according to circumstances.

Prognosis.—The presence of a foreign body in the ear is always a se-
rious circumstance. The present disorder of hearing may become perma-
nent. Besides the local symptoms which, and especially the pain, some-
times put on an alarming character, we have always to fear those dreadful
effects of sympathy producing encephalic complications, of which so many
examples are on record. These complications are of different kinds.
Sometimes there is inflammation of the brain or its membranes ; sometimes
the accidents are of a nervous character, inducing epilepsy or convulsions ;
and at others, an unusual stimulus is imparted to the salivary glands and a
profuse ptyalism brings on a state of marasmus. M. Lallemand believes
the affection of the ear induces that of the brain, not only by propagating
the diseased action by contiguity, but by maintaining a constant state of
congestion near the cranium. In stating an opinion a number of circum-
stances must be taken into consideration, such as the irritability of the

patient, his predisposition to cerebral affections, the nature of the foreign body, the degree of tumefaction, &c. &c. Thus, serious consequences have followed the movements of a flea in the meatus, and a roll of paper having penetrated the membrana-tympani, induced a fatal meningitis ; while, on the other hand, Larrey and others relate examples of large bodies, such as cherry-stones, teeth, &c. remaining in the meatus without causing the slightest pain.

Treatment.—Nowhere is the aphorism of Hippocrates, *sublata causâ tollitur effectus*, more applicable than here, provided it be enforced promptly. A great variety of means of extraction, according to the nature of the foreign body, have been resorted to. In all cases we should at once inject oil or some emollient fluid, which relieves the pain, facilitates the future extraction, and if the body be an insect it may cause its removal. M. Latour describes the various instruments which have been used in ancient and modern times. He speaks highly of the probe in the form of an ear-pick employed by M. Begin. When the body is forcibly fixed, he believes the use of a small wimble may be sometimes advantageous. A variety of forceps have been employed, and they answer excellently for pointed, angular, &c. bodies. Rounded bodies they seize with difficulty, and retain with as much, unless their extremities are concave. To be truly useful, each branch should be separately applied to the body and then locked like midwifery forceps.

Of foreign bodies which are developed within the ear itself, the *indurated cerumen* is the most common. The meatus in the young and in the adult is much moister than in the aged, in whom these concretions generally occur. These may vary much as respects consistence, colour, form and dimensions. If the concretion is soft it may be removed by an ear-pick ; but if indurated, the membrana-tympani might be injured by this procedure, and injections are to be preferred. M. Latour prefers oil to any other fluid, as partly dissolving the cerumen and facilitating the expulsion of the rest. Many cases of deafness, attributed to other causes, and long treated by other means, may, in this simple manner, be relieved.

Insects entering the ear at first cause a disagreeable sense of tickling, which is eventually converted into most dreadful pain, which may give rise to severe nervous symptoms, and even endanger the patient's existence. The earwig is considered by M. Latour, as well by other writers upon the subject, as the most dangerous of the insects which infest the ear. Many means have been recommended for the expulsion of insects. Various forms of probes and forceps have been contrived, the points of which are to be smeared with some sticky substance to secure the animal. Fluids for the purpose of impeding its respiration or poisoning it have been injected, such as sweet oil, milk, warm water, bitter almond oil, decoction of peach leaves, soap and water, essence of turpentine. Lastly, substances have been held at the external ear to tempt the insect out. " As to a little insect," says Ambrose Paré, " we may extract it by laying half a sweet apple at the orifice ; for the little creature in attempting to nibble it, may be seized hold of." Laschevin says the half of a potatoe is a special antidote in this way for the earwig. M. Berard and other surgeons have obtained the exit of the larvæ of flies by employing a piece of meat ; and, according to M. Velpeau, milk attracts the earwig. All these means are

desirable to be known, as in an emergency we may not have access to that one which we prefer; but, in the majority of cases, a simple injection of oil is all the treatment required.

We need not follow the author through the details he enters upon according to the nature of the obstructing body. He relates some interesting cases in illustration of the length of time foreign bodies may have remained in the ear prior to extraction. In two of these they excited more or less ptyalism, and in one lachrymation.

Guy's Hospital Reports. Second Series. Edited by Drs. *Barlow* and *Birkett,* and Messrs. *Cock* and *Poland.* Vol. IV. 8vo. pp. 498. Highley: London, 1846.

The present volume contains papers by Drs. Addison, Lever, Williams, and Hughes, and by Messrs. France, Hilton, King and A. Taylor ; besides two Reports, one Medical and the other Surgical, of the Clinical Society connected with the Hospital. We shall notice them *seriatim.*

I. On the Fallacies attending Physical Diagnosis in Diseases of the Chest. By *Thomas Addison,* M.D. &c.

After a glowing eulogium on the rare merits of Laennec and the distinguished services which he has conferred upon medicine, by the introduction of Auscultation into the art of diagnosis, Dr. Addison very judiciously remarks that this great discovery has, on the whole, been more injured by indiscreet and indiscriminate advocacy of its claims than by the most determined and open hostility.

"Books and essays without number, and of great value, have been written for the purpose of adding favourable testimony to the merits of the stethoscope ; to increase its utility, and extend its application ; whereas, so far as I know, not a single individual has deemed it right, or desirable, to pursue the opposite course, of expressly publishing to the world the manifold difficulties and fallacies attending its use. The publications alluded to, by the semblance of a too exclusive advocacy, have, according to my humble belief, placed the stethoscope and its pretensions in a false position; they have awakened in the minds of many a vague notion of infallibility; they have led the profession and the public to expect too much ; and, by suppressing or concealing the real imperfections of a favourite expedient, have put it in the power of hostile parties to inculpate the stethoscope for the errors of the stethoscopist."—P. 3.

No sensible physician will ever *substitute* Auscultation for other means of diagnosis ; but he will gladly employ it as a most useful auxiliary. He will not lean upon it as a crutch, but only use it as a staff with which to explore his way. Never will he omit to obtain a full and complete history of every case of disease which comes under his care. It is not the knowledge of one symptom, or of one set of symptoms alone, that he is to be satisfied with ; and how can he hope for such information unless by

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putting into requisition every means in his power of interrogating Nature? The too exclusive stethoscopist will unquestionably be oftener at fault, at least in his treatment, than he who refuses to avail himself of physical diagnosis altogether ; but surely the abuse of a thing can be no reason, in the eyes of a man of sense, for the total neglect of it. As a matter of course, the acquisition of any new method of investigation pre-supposes an expenditure of diligent attention on the part of the student. Dr. Addison says : " unfortunately, in the medical profession, all truly valuable and practical knowledge, is only to be obtained by a proportionate sacrifice of time and labour."—Why *unfortunately* ? It would be much better, alike for the public benefit and the credit of our profession, if the art of medicine—we do not say, of mere prescribing—were not so easily attained. Dr. A. has cast his observations into the form of distinct propositions, appending remarks to each of them. We shall select those which strike us as the most important.

1. Many persons, whilst under examination, fail to perform the respiratory act efficiently, either from mere nervousness, or from not knowing how to do it ; they merely heave the chest up and down, instead of freely inhaling and expelling the air.

This may lead to the erroneous belief that the respiratory murmur is deficient or even absent, while the lungs are perfectly healthy. The best way of preventing this source of fallacy is to desire the person to cough, and instantly afterwards to inspire forcibly, in order to cough a second time. The two sides of the chest should also be examined and compared together at the same time, in order to guard against error. .

2. Whatever lessens the freedom, mobility, or elasticity of the ribs, renders the sound or percussion more dull.

Hence, in rickets, old age, &c., the signs afforded by percussion, and in many instances by auscultation also, are often little to be relied upon. The chest is imperfectly resonant, the respiratory murmur is apt to be unusually feeble, and the impulse of the heart to be much weaker than it would be, if the ribs were more free and elastic in their movements.

3. When there is a lateral flattening of the ribs, with projection of the sternum, as is usually the case in a rickety patient, the action of the heart is liable from slight causes to beat with such violence, and to have its sounds and impulse so extensively diffused, as not unfrequently to have led to an unfounded apprehension of serious organic lesion of that organ.

The physician must, moreover, be more than usually cautious in his diagnosis and treatment of acute pulmonic disease under such circumstances ; as the violence of the symptoms is often quite disproportionate to the extent and severity of the existing disease, and may therefore suggest unnecessarily active treatment.

4. When exploring the chest in a case of recent disease, we may be misled by the permanent effect of an ancient Pleurisy, or Pneumonia.

It is well known that an old pleurisy or pleuro-pneumonia will often cause very considerable contraction of the affected side of the thorax.

This deformity is generally observed at the lower part of the chest, either anteriorly or posteriorly, or both.   As we might expect, there is usually dulness on percussion over the seat of a Pleuritic contraction, also feebleness or absence of respiratory murmur, constrained movements of the ribs, and dry crepitating or crackling sounds heard chiefly during the act of inspiration.   In the same manner, there may be dulness on percussion, bronchial respiration, bronchophony, and a sub-mucous crepitation discoverable in a fever patient from an old attack of Pneumonia, which has left a larger or smaller part of the lungs more or less completely hepatised.   In either of these cases, it may be scarcely possible for the physician to determine, at least by mere physical examination, whether the consolidation be of recent or of ancient date.

As a matter of course, the existence of these signs might seriously mislead a physician in the diagnosis of recent disease, if he were not aware of their long standing.   Hence the necessity of making minute enquiries as to the past history of a patient.

5. Distension of the abdomen from Ascites or from enlargement of the Liver or Spleen, &c., in short whatever tends to push up the diaphragm and to prevent the free expansion of the lungs, may have the effect of producing dulness upon percussion and feebleness of the respiratory murmur in the inferior part of one or of both sides of the chest ; and may thus give rise to the suspicion of a Pleuritic Effusion being present, when all is right within the throax.

The position of the patient, according as this is upright or horizontal, will necessarily have the effect of modifying the extent and degree of these abnormal signs just mentioned.

6. Of all the sources of fallacy to be encountered in the physical diagnosis of diseases of the lungs, Bronchitis is by far the most prolific of mistakes and oversights.

The co-existence of this disease is exceedingly apt to obscure the auscultatory symptoms of Phthisis, Pneumonia, and Pleurisy, as well as various forms of chronic pulmonary disease.

The value of the following remarks, on the complication of bronchitis with tubercular disease of the lungs in its early stage, will be appreciated by every practical physician :—

"It is under such circumstances that the too exclusive stethoscopist is liable to be beaten in diagnosis by those who reject physical examination altogether; for, the latter enquires carefully into the history of the patient and of his family, he observes attentively the patient's general aspect, and the character and order of the general symptoms; all of which are wont to be too much disregarded by the stethoscopist.   Nevertheless, if the stethoscopist do his duty, he has greatly the advantage : he will institute an equally careful enquiry ; added to which, he will observe whether the bronchial obstruction is limited to the apex of the lung; he will repeatedly, and for some minutes at a time, apply the stethoscope, or, what I prefer, the naked ear, to the upper part of the chest: he will desire the patient to breathe freely, to cough, and, if possible, to expectorate.   He will, by so doing, often succeed in removing the obstructing mucus, and thereby develop, however slightly, some degree of bronchial respiration, or bronchophony, or both ; signs strongly confirmatory of phthisical disease in doubtful cases.   Ac-

cording to my own experience, the individual symptom, which, without being decisive, above all others increases the apprehension of phthisical disease, is occasional slight hæmoptysis just sufficient to tinge or streak the sputa."—P. 9.

We are inclined to attach more importance than Dr. Addison seems to do to the character of the sputa. In simple Bronchitis we never observe those fragmentary boiled-rice-like particles floating in the water (in which the sputa have been received) and gradually settling down to the bottom of the vessel, which are almost uniformly seen in cases of genuine Phthisis. The streaked yellow appearance too of the expectorated matter, as well as the globular or nummulated form which it so often assumes, are phenomena nearly peculiar to the latter disease. Moreover, careful percussion will often serve most materially to aid the diagnosis. A firm or forcible tap over the site of a tubercular deposit very generally occasions, if not actual pain, a sense of uneasiness, which is not experienced by the patient at the corresponding spot on the opposite side of the chest; this uneasiness often extends through to the back of the shoulder.*

7. In every case of suspected Phthisis, the patient should be made to breathe and cough with some degree of violence, the physician having his ear applied all the while to the chest ; as the bronchi opening into a tubercular cavity are apt to become occasionally obstructed with mucus, so that the characteristic auscultatory phenomena may not be perceived during gentle respiration. It is necessary, therefore, that the obstructing mucus be dislodged, before these phenomena can be distinctly recognised. From want of the simple precaution just given, many errors of diagnosis have been committed.

8. Dr Addison remarks, with great truth, that "a person may have a violent tearing cough, lasting for weeks or months, attended with slight mucous expectoration, occasionally even streaked with blood, and causing pain to be felt throughout the whole chest ; as well as an appearance of constitutional distress; whilst neither auscultation nor percussion can detect any morbid change in the chest."

Such a case may result from a very simple cause—one that is very often overlooked in practice—we mean, a relaxed Uvula. It may depend, in the female, on Hysterical irritation. We have seen it in several instances in persons of Gouty diathesis, and found it yield to the use of antacids and of an anti-arthritic regimen, when it had resisted every other plan of medication. The existence of old pleuritic adhesions, or of limited pulmonic consolidation always, as might be expected, aggravates the severity and obstinacy of such coughs.

"9. When Pneumonia occurs in its simplest form, *i. e.* with little or no bronchial complication, there is sometimes no cough and consequently no expectoration;

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* We may here remark, *en passant,* that the application of a single leech every night or every second night, for a week or two at a time, over this uneasy locality —followed, it may be, by small blisters of the size of a half-crown or so—has in our hands been generally attended with very marked benefit.

the whole case so closely resembling common continued fever, that both the stethoscopist and the non-stethoscopist are apt to be thrown off their guard."*

As a matter of course, he, who avails himself of the aid of auscultation in such a case as this, must have a great advantage over him who neglects, or is ignorant of it; as the rational or subjective phenomena of the malady are altogether silent as to the presence of pulmonic distress. There is one symptom, indeed—and it is often a very characteristic and most valuable one—that should always be sought for in doubtful cases; we allude to the *pungent heat of the skin* over the inflamed portion of the lung; a symptom which usually lasts as long as the inflammation continues in its first or crepitating stage.

Pneumonic consolidation of the inferior and anterior potion of the lung may exist, and yet no dulness on percussion be present, in consequence of the inflated state of the stomach or intestines. Under such circumstances, even a well-marked modification of amphoric respiration and metallic tinkling may be heard to a considerable height in the chest, and thus mislead the physician to believe that Pneumo-thorax is present.

10. In the 23rd Proposition, we find Dr. A. giving it as his opinion that "it is very doubtful whether physical examination can, in any instance, determine with certainty the evidence of simple Tubercles in the lungs." True, unless the physical examination is—as it invariably ought to be—associated with minute attention to the subjective or ordinary class of symptoms. Much, very much, may be gained from a sedulous investigation of the history of the case from the first development of the symptoms up to the period when the examination takes place, from observing the general complexion of the patient, from ascertaining the state of health of his parents and the other members of his family, whether he or any of them has been affected with hæmoptysis, &c. &c. Still we must admit that tubercular disease may exist, and to a considerable extent too, in the lungs, without giving rise to any suspicious symptoms.

11. Many will not quite agree with our author when he affirms that "physical examination cannot determine whether Pneumonia, in any of its forms, has, or has not, supervened upon Tubercles; although the prognosis in the two cases would be very different." That pneumonic attacks in phthisical cases are not unfrequently overlooked, in consequence of the comparative mildness of the symptoms, will be acknowledged by every practical physician; but it is equally true that a careful auscultatory examination may generally discover that the murmur of respiration has become feeble and mixed with a fine crepitating sound, when inflammatory action has supervened. The character of the sputa, also, is usually some-

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* "It has been only of late years that the attention of physicians has been specially directed to the not unfrequent existence of a *latent* pulmonic affection in cases of Typhus fever. The 'subjective' symptoms of this complication are usually not very prominent or striking; and it is therefore only by the aid of the 'objective' phenomena, as disclosed by auscultation, that our diagnosis can be accurately formed.—*Schoenlein's Klinische Vorträge, in Medico-Chirurgical Rev. for October* 1845.

what altered from what it was just before the attack ; and, in some cases, the increased heat of the skin over the seat of the inflammation may serve as an additional diagnostic symptom.   Let us again most strongly urge the reader never to dissociate the auscultatory from the other means of examination, nor to use the one to the exclusion or neglect of the other.

12. There is another point in which Dr. Addison's experience has led him to a somewhat different conclusion from that generally received.   According to him, acute Pneumonia not unfrequently attacks the apex of a lung, quite unconnected with, and independent of, tubercular disease.

" I have," says he, "on several occasions, known hepatization of the apex from acute pneumonia, pronounced to be phthisis by stethoscopists : they have not sufficiently appreciated the difficulty ; they have neglected to enquire carefully into the history and progress of the case, and have mistaken the *pungent heat of skin* of ordinary pneumonia for that which occurs in phthisis; and which, I believe, nevertheless, has often the same origin."—P. 13.

And then the following case is quoted in confirmation of this statement :

" Mary B——, aged 19, was admitted, under Dr. Addison.   She had always been delicate; and after the whooping-cough and measles, which she had had eight years before, had been subject to attacks of cough and cold, in which she had frequently expectorated blood.

" When admitted she had a troublesome cough, with scanty sputa, slightly tinged with blood.   There was dulness on percussion below the left clavicle, with tubular breathing and gurgling, the last extending down nearly to the margin of the ribs, where it became more dry and crepitating.   Posteriorly there was dulness on the left side, extending from the apex nearly as low as the angle of the scapula ; and tubular breathing and bronchophony to the same extent; slight tubular breathing and bronchophony at the right apex, with large crepitation.

" Under the impression that phthisis was present, she was ordered—

> Empl. Canth. infra claviculas singulas applicetur.
> Pil. Papav. ō Ipecac. bis die sumat.
> Mist. Mucilag. ter die sumat.

Under this treatment the cough became worse ; sputa more copious, fawn-coloured, and uniform, except that it contained puriform streaks; the head painful ; pulse 120, compressible ; cheeks flushed; skin hot and pungent; while the signs afforded by auscultation and percussion continued unaltered.   She was then bled twice to eight ounces ; and calomel, antimony and opium were administered.   Her mouth was kept sore by the calomel for a few days, when it was discontinued, and nothing given but julep. ammon. acet.   Under these remedies the dulness, tubular breathing, bronchophony and gurgling, at the left apex, gradually diminished, and at length entirely disappeared.   The tubular breathing and bronchophony at the right apex persisted longer, and caused some alarm ; but these also ceased : the expectoration became white and frothy, and then, with the cough, subsided."— P. 14.

We strongly suspect that tubercular disease did exist in this girl at the period of the pneumonic attack, and that eventually she would die of it. Too often, we never learn the real event of cases in hospital practice. The patients, on being relieved of their more immediate ailments, are discharged, as convalescent or cured, only to sink under the more gradual advance of chronic disease.

In conclusion, we cannot but express our opinion, that whenever Pneumonia affects the upper and anterior part of the lungs alone, and is unassociated with any trace of the disease in the lower and posterior parts, there is strong reason to suspect the presence of tubercular disease.

13. The remarks by our author on the Pleurisy that is seated low down in the angle between the ribs and the diaphragm, especially on the anterior part of the chest, are very valuable, as suggesting the necessity of great caution and the most sedulous attention, that the disease may not be mistaken, as it is apt to be, for Pleurodynia, Spasm of the diaphragm or thoracic muscles, Hepatitis, &c. In the early stage of the attack, neither auscultation nor percussion can afford us satisfactory or trustworthy information. Two or three days must elapse before we can derive any decided assistance in our diagnosis from either. As a matter of course, however, no judicious practitioner will wait for the supervention of the physical signs of pleuritis before determining upon his line of treatment. In all cases of doubt, where a fixed sharp pain exists, local—if not general—depletion, and the use of nauseant aperients, should be had recourse to.

" When pleurisy has its seat in the parts alluded to above, it constitutes by far the most painful, and perhaps the most dangerous, form of the acute and sthenic disease. It is the Paraphrenitis of the ancients : a disease which, according to them, consisted simply of inflammation of the diaphragm. This, however, is not correct ; for the pleura covering the diaphragm is often inflamed without giving rise to the dreadful suffering observed in paraphrenitis ; whereas, when acute and sthenic inflammation attacks the pleura, where it is reflected from the diaphragm to the ribs, at the base of the chest, and thus involves both the diaphragmatic and costal pleuræ at the same time, then it is that we have such intense suffering, and such an expression of agony in the countenance, as forcibly to remind us of the *risus sardonicus* of the old writers."—P. 20.

14. Pleuritic Effusion, when moderate in quantity, and not associated with other morbid states of the thoracic viscera, may entirely escape detection by any means of physical examination. We cannot trust much to percussion, as the fluid does not rise high enough in the cavity of the chest, and any slight dulness of sound is at the same time rendered equivocal by the liver on the right, and the inflated stomach on the left, side ; and even the auscultatory symptoms are only of uncertain value. A case of Bright's disease is mentioned, in which the signs of effusion into the right chest were very unsatisfactory, although on a *post-mortem* examination shortly afterwards it was found to contain a large quantity of serum.

15. When Pleuritic Effusion is very considerable, giving rise to unequivocal bronchophony, tubular respiration, and want of resonance and vocal vibration, physical examination has repeatedly led to a mistaken belief that these signs resulted from pneumonic or other consolidation of the lung. This mistake is more likely to be committed when the effused fluid is partially retained in the meshes of a fibrinous exudation between the pleural surfaces. It is a fact, too, which the dispassionate stethoscopist must admit, that in some cases it is scarcely possible to distinguish the

pleuritic rub or friction-sound from some of the sounds developed in the bronchi : they often resemble each other very closely ; and both occasionally communicate a distinct vibration to the hand applied to the thoracic parietes.

16. After pointing out several sources of fallacy in the diagnosis of Pericarditis and of some Diseases of the Heart, we come to proposition 36, which stands thus :

" 36. A sound closely resembling a valvular murmur appears not unfrequently to be produced by the stroke of the heart against a portion of lung, interposed between it and the parietes of the chest. Under such circumstances, auscultation may lead, and I believe often has led, to the erroneous conclusion, that the heart is diseased, when it is perfectly normal in every respect.

" This sound is most frequently heard at some point in the direction of the edge of the left lung, where it overlaps the heart, to the left of the sternum, from about the second or third to about the fifth rib, and especially somewhere between the second rib and the neighbourhood of the left nipple. Its tone somewhat resembles that of a *bruit de rape ;* but, at the same time, it communicates a sense of dryness and crumpling, different from the rigid squeezing or grating observed in the ordinary *bruit de rape.* It is also more variable, both in its development and its extent. We find it different at different moments, and during the different movements of the chest ; and it may occasionally be made to disappear altogether, by a deep and forcible inspiration, so long as that inspiration is maintained by the individual. On the other hand, its extent or prolongation varies in different cases ; or even at different times in the same case ; apparently according to the extent or size of the portion of lung which happens to be struck by the heart at each systole of the organ. In a few instances I have found the sound, to a certain extent, double ; the second, or that attending the diastole of the heart, being in general, perhaps, more limited and indistinct than the first. I believe this sound, which I have long observed, and now attempt to describe, to be that recently pointed out by my colleague, Dr. Barlow. It may possibly be that also noticed by Dr. Latham as frequently present in phthisis."—P. 30.

17. Having cautioned his readers against deciding either hastily or very dogmatically as to the existence of cardiac disease from the presence of certain murmurs over the heart and great blood-vessels, by showing the difficulty of distinguishing between those from a functional and those from an organic malady, Dr. Addison candidly avows, in Prop. 40, that " in certain diseases of the heart, especially when the organ is enlarged, it is difficult, or impossible, accurately to localise the murmurs, however distinct and obvious these murmurs may be." Let this unmistakeable acknowledgment from an experienced auscultator and able physician like Dr. A., serve to check the fractionally-minute and curiously-elaborate descriptions of some of the younger stethoscopists of the present day. We have again and again enunciated the spirit of the above proposition in reviewing various recent works on Heart-diseases, Auscultation, &c.

Before taking our leave of this truly practical paper, we must not omit to state that Dr. Addison has mentioned, in an early part of it, that " great contraction of the right chest after pleurisy almost as certainly draws the heart towards the same, as extensive effusion into the left chest forces it towards the opposite side." Attention to this fact may be of great importance to the physician in forming a correct diagnosis in some

thoracic maladies, when the configuration of the chest has become altered
either from congenital or subsequent disease.

II. EXAMPLES OF PTOSIS, WITH ILLUSTRATIVE REMARKS.   By *John F. France.*

Mr. France is inclined to believe that, in a very great number of cases
of ptosis, the cause of the paralytic weakness of the eyelid is pressure on
the third pair of nerves within the skull, either from vascular fulness, or,
it may be, from sanguineous or serous effusion.   In not a few instances,
symptoms of cerebral congestion will be found to be present ; and the relief
of that is often sufficient to effect the removal of the paralytic affection.

Mr. F. gives the following ingenious explanation of the much greater
liability of the *motor oculi* to be so affected, than any other of the nerves
of the orbit :

"This nerve, almost throughout its intra-cranial track, is in the immediate
vicinity of those which must be regarded as very dangerous allies : first, hooking
round the posterior cerebral artery, to traverse the narrow interval between that
vessel and the superior cerebellar; then running forward nearly parallel to the
posterior communicating artery, in a degree of proximity, the occasional mischief
of which is demonstrated by the necroscopic examination in Case 9 ; and then
crossing the termination of the internal carotid, immediately on its outer side,
and closer to it than any other of the nerves contained within the cavernous
sinus.

"The sixth nerve, it is true, is previously in actual contact with the coats of
this vessel ; but running along the floor of the sinus, must, in a great degree,
be secured from pressure ; as, from the upward direction of the current of blood,
the horizontal portion of the carotid must be rather raised from, than pressed
against, the inferior wall of the sinus upon each contraction of the left ventricle;
and, from the same cause, the inferior wall of the artery itself must be, mecha-
nically, the least liable to morbid distension, or rupture.   That nerve, however,
sometimes suffers like the third."—P. 55.

That the seat of the pressure on this nerve is situated within the cranium
is rendered probable from the circumstance that, being in close apposition
with the 6th and the nasal branch of the 5th nerve, it is scarcely possible
to conceive that one nerve alone could suffer from the supposed cause and
the others escape.   The double vision of the drunkard, we may remark
en passant, is chiefly owing to a disturbance in the functions of the *motores
oculorum*, produced doubtless by the distended state of the cerebral vessels;
the axes of the two eyes no longer converging to the same object.

Of 13 cases related by Mr. France in illustration of his subject, No. 9
is perhaps the most interesting ; the following is a summary of its chief
features :

A young woman, stout and plethoric, came under treatment on May
13th for Ptosis on the right side.   For a month previously, she had been
suffering from headache and giddiness ; and, five days before admission,
she was suddenly seized with headache over the right eyebrow, accom-
panied by faintness and vomiting.   Next morning, the right upper lid was
observed to drop, and vision on the same side was found to be impaired.
She was bled, leeched and purged ; but without relief to the ophthalmic

symptoms.　The pupil of the affected eye was much dilated, and imperfectly mobile; the movements of adduction, elevation, and depression of the ball were more limited than natural, but that of abduction was complete.

She was ordered a grain of quinine three times a day, and five grains of Plummer's pill night and morning.

On the 15th she was not so well; the Ptosis had become complete; and the three motions of the globe, and that of the pupil were more restricted.　The quinine was suspended, and one grain of calomel with a quarter of a grain of opium* ordered to be taken three times a day: a blister also was applied to the nape of the neck.　In the course of three days, the gums began to be sore; but no decided improvement in the movements or sight of the eye; the right pupil remained much dilated. On the morning of the 31st, she was suddenly seized with apoplexy, and died in the course of a few hours.

On *dissection*, there was discovered a recent extravasation of blood at the base of the brain; it had come from the posterior communicating artery of the right side.　Resting on the aperture in this vessel, was a circumscribed solid coagulum, and under this was the right motor nerve spread out, having obviously undergone considerable compression.

In cases of prolonged Ptosis, the contractility of the pupil of the affected side is apt to become more or less seriously impaired.　This is just what we might expect, considering the connexion of the third nerve with the Ciliary Ganglion.　The dilatation of the pupil so induced is apt to make the oculist suspect the presence of Amaurosis; and this mistake is the more liable to be committed, seeing that considerable dilatation of the pupil from whatever cause it may arise, is almost always attended with greater or less indistinctness of vision.　The concluding remarks of Mr. France will be read with interest, alike by the physiologist and practical physician.

"Loss of power of the motor-oculi nerve ensures, as certainly, a direct loss of the healthy contractility of the pupil, as it does of that of three recti, of the levator palpebræ, and of the inferior oblique muscles.

"This is a fact, indeed, which has been abundantly demonstrated by the experiments of physiologists; but it has not, I believe, received the confirmation of a detailed series of cases before.　That now presented, while giving pathological testimony to the controlling power of the third nerve over the pupil, shows, at the same time, that this power is exercised only, as anatomy would indicate, by the inferior division of the nerve.　With respect to the mechanism of the pupillary actions—amid the conflicting results of microscopical examinations, which, on this subject, just cancel one another—we are still fain to resort to rational argu-

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* We may take this opportunity of expressing our objection to this too-frequently used combination of Calomel and Opium in almost all cases indiscriminately, when the design is to mercurialize the system.　In cerebral affections, and in other diseases where there is a tendency to cephalic disturbance, the action of the opium is apt to be most injurious.　The Hydrargyrum cum Cretâ combined with carbonate of Soda or with the pulv. Cretæ Comp. (according to circumstances)—in doses of from 3 to 5 grains of each, repeated every four or six hours—will be found a most safe and and useful substitute.—*Rev.*

ments; and, among them, this obedience of the pupils **to the third pair does** appear to me to constitute one of the most forcible **in favor of the muscular** theory."—P. 63.

III. REPORTS OF THE CLINICAL SOCIETY, FROM JANUARY, **1845, TO** MARCH, 1846. By *Alfred Poland :* SURGICAL DIVISION.

Our extracts from this article will be very short. **The cases are not** reported with due care, nor are their relations to practice **sufficiently dwelt** upon, to entitle the report to much notice. How comes it **to pass that** none of the surgeons of the hospital revise it before publication, **and in-** corporate with its details such reflections as their perusal **must enable** *them* to suggest ? This matter requires attention, if the Guy's School **wish** to maintain the well-merited reputation of their " Hospital **Reports."**

A. There were two cases of Traumatic Tetanus; both **proved fatal. In** the first, the symptoms were of a well-marked hydrophobic **character; for** the patient " had trismus, opisthotonos, difficult deglutition, **abhorrence** of fluids, great pain, spasms every quarter of an hour, &c.; **he was quite** sensible." Death occurred three days after the invasion of **the disease,** which had been induced by a severe injury of the fore-**finger. In this** case, as well as in the other which occurred in a young child, **the nerves** at the seat of the injury were found to be *inflamed*.

B. Under the head of Injuries and Diseases of the Lungs **and Appen-** dages, is briefly related a case of a Foreign Body, a sixpence **introduced** into the Trachea. " No symptom was observed, but an occasional **spas-** modic cough. Conjectures were raised as to its position, and **even as to** its presence. The stethoscope elicited a metallic sound. **Tracheotomy** was urged by some, but considered unadvisable ; and in the **night, during** a paroxysm of coughing, the man ejected the coin, and was **soon pre-** sented in good health."

C. The external Iliac artery was tied in a case of Femoral **Aneurism.** A fortnight after the operation, secondary hæmorrhage **supervened ; and,** as this recurred on several occasions, the patient gradually **became ex-** hausted, and died on the 32nd day after the ligature had been **applied.** On *dissection*, " the Iliac artery was found divided ; its *upper* end **plugged** with coagulum ; its *lower* end quite open, and devoid of clot."

D. The following is surely a *cas rare :*

" Acute Phlebitis occurred in a young man, aged twenty-five, of **bad health** and constitution, who had received a kick on the arm, to which leeches **had been** applied ; phlebitis ensued, with severe constitutional symptoms ; a livid **appear-** ance of the skin in the neighborhood of the blow ensued ; an incision was **made,** *and a dead leech found embedded !* No wound, except a leech-bite, **could be ob-** served externally to account for its entrance. The man, however, died **exhausted;** and no autopsy was allowed."—P. 69.

In a case of Chronic Phlebitis, which supervened upon opening **an ab-** scess near the right ankle, and in which an œdematous state of this **extre-** mity, and also of the scrotum and prepuce supervened, " the vena **cava in-** ferior, and right iliac vein were found obstructed by coagula adherent to **the**

inner coat; the left iliac vein was contracted; the kidneys were granular, and the lungs were affected with old pneumonia.''*

E. A case of Rupture of the Bladder occurred in a man, from another butting his head in the patient's left groin, and throwing him a summer-sault over his back. The urine was drawn off at first by a catheter; subsequently it was passed with freedom and in a healthy state. Symptoms of peritonitis came on, and the patient died in 90 hours. On *dissection*, '' the bladder was found ruptured to the extent of three-quarters of an inch at its base, and some urine was extravasated behind the peritoneum to near the lumbar region.''

F. There were 26 cases of Hernia; 13 male and 13 female. The latter were all femoral,† as also 3 of the former; the remaining 6 were oblique inguinal. In several, the reduction was effected by the taxis, aided with the warm bath, and the application of ice to the tumour. The mortality after the operation for Hernia in hospitals is almost always considerable, in consequence of its being injudiciously delayed and, probably also, of unnecessary force having been used in the taxis, previous to the admission of the patient.

G. A case of Obstruction of the Large Intestine, of five days' standing, is related; the symptoms do not appear to have been alarming. The patient was affected with a reducible scrotal hernia and also with *scirrhus* of the rectum. '' A flexible bougie was passed per anum to some extent, as also a long flexible tube; enemata were given, and calomel and opium administered, but to no effect : the man died suddenly on the third day collapsed. The autopsy showed extravasated fæces, and an open ulcer of the rectum about the size of a shilling.''

The practice in this case seems to have been anything but wise and' proper; indeed, we strongly suspect that the mechanical interference accelerated its speedy close. When will medical men learn to do nothing, when there is no rational prospect of doing good ?

H. In the following extraordinary case of Ovarian Disease, nature seems to have effected a cure. The tumour was of three years' standing, when the patient was admitted into the hospital, and it had been tapped about six months before, and three quarts of fluid drawn off.

'' It then gradually increased, and attained the size of thirty-seven inches, measured round the body at the umbilicus. She complained of a good deal of pain : the catamenia continued regular. On admission, diuretics were first had

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* In the Medical Clinical Report is related a case of fatal Pleuritic Effusion (the pericardium also was full of a dark fluid), in which on dissection the *left* vena innominata was found totally obliterated, being converted into a dense cord; '' the *right* one had slight recent obstruction; in the right jugular vein there was a coagulum, solid but recent; vena azygos free. In the superior cava was a pe-dunculated growth, about two inches in length.''

The occurrence of such cases as this suggests the utter inutility, or rather impropriety, of active treatment, when much obscurity hangs over the diagnosis.

† As stated in this Journal for last April, M. Malgaigne denies that femoral hernia is more frequent than inguinal in women. We are not, however, aware that any other surgeon has expressed his concurrence with M. M.'s opinion on this point.

recourse to, and with benefit ; but at the end of six months, the tumour beginning to increase, she was tapped, and two ounces of grumous blood, like the contents of a hæmatocele were drawn off. Symptoms of peritonitis supervened. An abscess formed in the abdominal parietes, which was opened, and afterwards assumed an unhealthy action ; large pieces of slough came through the opening ; and on one occasion a piece about two feet long was removed, and appeared to be nearly the whole of the ovarian cyst. The woman became exceedingly low ; but, under tonics and stimulants, recovered, and left the hospital, about a year afterwards, perfectly cured. In the course of the following twelvemonth, while in the country, she was seized with bronchitis and symptoms of phthisis, and died. Unfortunately an inspection was refused."—P. 81.

Perhaps it may be as well to allude here to a case of Tumour (subsequently related) on the front of the neck, in the situation of the Thyroid gland, of which it was supposed to be a malignant growth. " It increased rapidly, and impeded respiration ; fluctuating at one part, it was tapped, and much fluid drawn off with relief. The tumour became inflamed and sloughed, large masses coming away, until the whole was removed ; the patient required much support."

i. Passing over the cases of recent Fractures, it may be worth while to allude to two cases of Ununited Fractures which occurred. One was of the humerus, of eight months' standing : *there was an excess of the phosphates in this patient's urine.* As a variety of methods had been tried, but without avail, amputation of the extremity was recommended ; but the man would not consent.

The other was of the tibia and fibula, of nine months' duration, and was owing to the imperfect union of a compound fracture. The starch bandage was applied, and Iodine given internally ; the union became complete.

j. We much fear that the following record of 9 cases of Scirrhus of the Mamma is, from the off-hand air of confidence with which a cure is spoken of, apt to mislead the young reader as to the *real* results of operations in this disease.

" Of these cases, four were cured by the knife, in one of whom the operation nearly proved fatal, owing to a very severe attack of erysipelas ; and in one of these cases, also, the disease had formed a large, open, fungating sore, discharging a profuse fætid serosity ; but the glands, with the axilla, were free, and thus so far the operation warranted. Four were unrelieved ; two from an unwillingness to submit to the operation, and two from the advanced state of the disease, the neighbouring glands being extensively involved. The last was a case of recurrence of the disease after an operation which had been performed eighteen months previously ; the patient was in bad health and the disease in an active state, rapidly increasing, and producing intense pain and suffering : she lingered on for three months, and then sank from exhaustion."—P. 132.

The last case is but a sad comment on the cures (!) said to be effected by the knife in the four first.

k. Among the cases of Dislocation we find that two proved fatal.

" One was a very curious and rare dislocation of the astragalus, with the tibia and fibula (the ankle-joint being entire) off the os calcis and os naviculare, occasioned by a fall of thirty feet down the stairs of a dock basin. The precise condition of the position of the bones was not clear : reduction was attempted, but to no avail : sloughing of the integument supervened, and the articulating sur-

face of the astragalus exposed. The patient's constitution began to suffer, and amputation was had recourse to on the seventh day; the stump sloughed, and fatal prostration ensued. The tendons about the ankle were found much displaced: the tibialis posticus was thrown in front of the tibia; and the flexor longus pollicis in the interrosseous grove on the under surface of the astragalus: the vessels were entire: the posterior tibial nerve was much stretched over a sharp edge of bone. The other dislocation was also of exceedingly rare occurrence, and its nature was only ascertained after death: it was that of the sacrum thrown forwards from off the ossa innominata. It was produced by a sudden blow, on the lower part of the spine, by the buffer of a railway-engine The man was brought in insensible, with a severe scalp-wound, and fractured ribs and emphysema. He lived several hours. The *sectio-cadaveris* displayed, besides the dislocation above alluded to, a fracture of the spine in the dorsal region."—P. 134.

We fear that injudicious force was applied in attempting to right the foot in the first of these cases. There is often vast mischief caused in this way.

The Medical Clinical Report is drawn up with even less care than the Surgical. For example, under the head of Diseases of the Organs of Circulation, we read that there were 4 cases of Aneurism admitted, and that of these, two were relieved and two proved fatal. "Of those reported relieved, it becomes a question whether they were really aneurism. The age of one was twenty-six: there was a rough murmur heard over the aorta; and much pain between the shoulders. The age of the other patient was forty-two; there was no murmur present, but the heart's sounds were prolonged. Both these patients had been much exposed to cold, and both had been the subjects of rheumatism." What?—are we to be told nothing more of the symptons of a case of alleged aneurism than that "the heart's sounds were prolonged?" Again, we are not informed whether a correct diagnosis was formed in any one of the four cases; from the imperfect statement of their histories, we suspect not.

B. In addition to the cases of chronic Phlebitis and obstruction of veins, already noticed, we may here mention that there was admitted, under the care of the physicians, "an interesting case of obstruction to the venous circulation of the upper half of the body. The head and neck appeared bloated and ready to burst; the lower half of the body was of the normal size and appearance. It was conjectured that some tumour was pressing upon the superior vena cava. The man left with but slight alteration."

In a case of ascites which proved fatal, "the inferior vena cava was found filled with a fungoid mass, even to the entrance of the auricle; the vena azygos was much enlarged."

It is obvious, therefore, that obstruction of the internal veins is by no means of infrequent occurrence.

C. A case of Cancrum Oris—successfully treated by the application of pure nitric acid to the sloughing ulcer, and the internal exhibition of the *chloras potassæ* with *decoct. cinchonæ,* wine, eggs, beef-tea, &c.—is recorded.

D. An example of Scirrhus of the Pylorus, in which the symptoms were chiefly palpitation of the heart and dyspnœa, while those connected with the stomach were so indistinct as seem to have scarcely attracted any notice, is narrated. The patient died of an attack of diarrhœa. On dis-

section, " the stomach was distended with fluid, and at its pyloric extremity a scirrhous enlargement existed of about the size of an egg: the passage from the stomach to the duodenum was consequently constricted, but not to such an extent as to prevent the transmission of its contents."

IV. CLINICAL REPORT OF CASES ADMITTED INTO THE PETERSHAM WARD.   By *John C. W. Lever*, M.D.

This report contains the account of 74 cases treated by Dr. L. in the female or obstetric ward during twelve months, from June 1845 to June 1846.   The cases are much more carefully drawn up, and the information is greatly more satisfactory than in the preceding reports of the Clinical Society.

A. Under the head of Ovarian Dropsy, is related a case of Fungoid Disease of the Uterus and left Ovary, and involving more or less all the pelvic viscera.   During life fluctuation had been felt distinctly per vaginam, as well as per rectum: and accordingly with a trocar, introduced into the former passage, a puncture was made, and a dark-coloured fluid was evacuated. She continued better for about four months afterwards, when it was again deemed necessary to repeat the operation, and about 12 oz. of a lightish yellow-brown fluid were drawn off.   She was seized with diarrhœa a week or two subsequently, and died.   On *dissection*, the disease of the uterus was of two kinds, "the soft medullary fungus, and the hard cartilaginous scirrhus ; and a point of special interest was the development of cysts, containing clear serous fluid, and having the cerebriform fungoid masses projecting from the walls: such a one was found at the post-mortem examination, and was doubtless similar to that which had been punctured during life, and the walls of which had subsequently taken on a sloughing action."

Dr. Lever frankly confesses that he was mistaken in his diagnosis of this case ; having regarded it, during the life of the patient, as one of encysted Dropsy of the ovary.   He omits to tell us, by the bye, whether the fluid, discharged by the operation, was examined with the microscope : but the following is the account of the microscopic appearances observed on examining the parts after death.   " The soft medullary tumours were made up of cells, having thick walls, giving them a double outline, and containing one, two, or three nucleated cells: there seemed to be no connecting tissue, which accounts for its soft and cerebriform character.   They may be taken as a type of malignant formation."

With respect to the treatment adopted, Dr. L. remarks :—

" I conceive that it was the best that could have been employed under the circumstances; and, in my opinion, interference was necessary; for the fæces when solid, were of tape-like form ; and, as the patient had but slight control over the sphincter-ani, they were, when fluid, frequently passed before she could reach the water-closet.   The bladder and urethra were subjected to undue pressure and irritation; a catheter could with difficulty be introduced; the nerves were injuriously acted upon; there were numbness and weakness of the right lower extremity, causing her to limp.   On each occasion when the fluid was drawn off, she recovered the perfect command of the sphincter-ani, the calls to

void the urine were less frequent; the numbness and weakness of the right leg were lost; and she had as perfect control over its movements as over those of the left."—P. 194.

B. Two interesting cases of Pelvic Abscess—both in the *left* iliac fossa —are recorded. In one, the abscess burst into the gut and was discharged per anum; in the other, it was opened externally, and a quantity of pus, mixed with fœtid gas, was evacuated. Both patients did well.

C. Two examples of Vascular Tumour of the Urethra in the female are related. As this malady is apt to be overlooked by medical men, and is perhaps scarcely known to many of them, it will be useful to mention briefly the particulars of one of the cases.

"A woman, æt. 67, had been obliged to relinquish her occupation as a sempstress in consequence of severe pain in the urethra, irritability of bladder, and constant desire to void her urine, which she attempted every five minutes; difficulty, but no pain, was experienced in passing her motions. After the trial of various popular remedies, as well as submitting herself to the care of surgeons, she applied at a dispensary at the west-end of London: there the cause of her sufferings was detected. Her general health was tolerably good, and there was no discharge of any kind at the time of her admission. She had constant calls to void her urine, the passage of which occasioned her great pain, occasionally of a shooting character, extending upwards to the abdomen, outwards to the hips, and backwards to the perinæum. On separating the external labia, a vascular tumour was seen protruding through the meatus urinarius, of a florid red colour, and about the size of a kidney bean. On minute examination, which was with difficulty permitted, on account of the exquisite sensitiveness of the growth, it was found that it passed some little distance into the urethra, and was so vascular that it bled upon the slightest touch; the suffering occasioned by the examination was considerable.

"The patient was placed on her back, and the tumour, with the lining membrane of the urethra attached to it, was removed. The nitrate of silver was then applied, and she was desired to keep the part constantly wetted with white lotion."—P. 219.

The operation caused much pain, which continued all night. The nitrate required to be applied, at intervals of three or four days, several times. At length, in the course of about a month, a cure was effected.

D. We regret to observe that, in one case of Scirrhus of the Os Uteri, Dr. Lever thought it "advisable to make the experiment of removing the diseased portion. This was accomplished by Mr. Hilton, who, failing to draw down the uterus so as to protrude the os uteri through the external parts, removed the disease with this organ *in situ.* Considerable hæmorrhage attended and followed the operation, but was arrested by a large and firm vaginal plug. The operation was followed by peritonitis, which was treated by repeated leechings and the administration of calomel, antimony and opium. When convalescing from this, she was attacked with dysentery of a most aggravated and fearful character, and for some days her life was in extreme peril; but she slowly recovered, and left the hospital to undertake the duties of a turnkey at one of the metropolitan prisons. The womb, however, was not freed from disease; for on making an examination some time after she had been performing her public duties, I found the discharge copious and offensive, with a return of the scirrhus."

E. A number of cases of Simple Ulceration of the Cervix Uteri are re-

lated. All were relieved or cured by the application of the nitrate of silver, &c. through a glass speculum, every second or third day, and attention to the general health. Even in instances where the ulceration was of a more unhealthy, and even a very suspicious character, much benefit was obtained from the occasional application of pure nitric acid to the seat of the disease, and the internal administration of alterative tonic medicine, along with nourishing diet, &c.

V. On the Physiology of Cells, with the view to elucidate the Laws regulating the Structure and Function of Glands. By *Thomas Williams*, M.D.

The great object of the author, in this elaborate paper, is to endeavour to determine the true laws regulating the organisation and function of the Liver, by tracing its development and condition through the various classes of animals, from the simple *Actinia* up to the highest order of the *Vertebrata*. The comparative anatomist will not fail to appreciate the value of the minute details and numerous illustrative wood-cuts which Dr. Williams has given; but they are quite unsuited to the pages of this Journal. Indeed, some readers may be tempted to ask, how it comes to pass that a paper like this should find a place in the Reports of a Hospital? We shall give but one extract, as it bears upon some disputed points in General Physiology.

" From the description of all preceding observers of the structure and peculiarities of these humble organisms, it was confidently expected that the biliary system in the actinia would be discovered under circumstances of the greatest practicable simplicity,—under the form, namely, of ' a follicle' in the walls of the digestive sac. Practical enquiries will indisputably prove that such statements are founded only on theoretical suppositions. Each succeeding author on comparative physiology has at once admitted and transmitted the errors of his predecessor; so that it has actually become an axiom, that, however inextricably complex an organ may be in the highest order of animals, its remote submultiple, its rudest dawning in the distant extremity of the declining scale, will be found, without a solitary exception to diversify the monotonous law, to consist of a follicle. This is the invariable terminus of all researches afrer the ' analogous' and morphological reductions of organs, which acquire complexity of internal arrangement. In regard to the provisions made for the supply of secretions in animals, of which the body altogether is no more involved than a large follicle, it seems superfluous to urge the argument, that, if a follicle, with its component machinery of cells, membranes, and vessels, were furnished for the exclusive purpose of elaborating a single secretion, a subordinate organ, subservient to uses of a minor importance, would exceed, in complexity of structure, the organism viewed as a whole. In the minute structure of the actinian polype direct proofs may be obtained to confirm the view, that a follicle is not the ultimate link in the chain of morphological reductions. Aggregations of nucleated cells occur in the depressions between the vertical duplications of the digestive membrane, which in their intimate organisation, seem, in a very obvious manner, to unite all the requisite of a gland. These cells are held together by, and are lodged in, a semi-fluid plasma of extremely tenacious property*;—a property which acquires importance in the use apparently assigned as one of its functions of holding the cells *in situ*, and of preventing displacement and injury during the dilatations and contractions which the stomach is destined to undergo."—P. 282.

VI. The case of " *Supposed Spontaneous Perforation of the Stomach terminating successfully,*" related with great minuteness by Dr. Hughes, is one which will be viewed very differently by different readers.* That the symptoms, which usually attend sudden rupture of some part of the alimentary canal, were present in the present case cannot be disputed ; and the treatment adopted by our author, on the suspicion that this most alarming lesion existed, was the very best that could be followed.

" Opium, quiet, and starvation were the three remedies employed. The opium was administered in moderate doses only, as they appeared to have the desired effect ; and those doses were diminished as soon as the symptoms appeared to justify the reduction. In the first twenty-four hours the patient took between seven and eight grains of the drug, without any of the ordinary effects of opium upon the brain, the iris, or the tongue, being at any time noticed. This fact itself appears to indicate that some very severe disturbance existed in the system. After the first twenty-four hours, the patient took only four grains in the day and night, and this quantity was soon reduced to three grains. By the mouth she took no other medicine of any kind. Warned by the unfortunate experience of Dr. Stokes in one of his cases, it was determined to administer no aperient. On the seventh day the bowels acted spontaneously.

" For a period of eighteen days the patient was not allowed to move or to be moved, in the slightest degree, from the supine recumbent position. When the bed became hard and uncomfortable she was removed in a sheet, without any alteration of her position, to another already prepared for her. The enemata were administered as she lay on her back.

" For a period of forty-eight hours the only sustenance allowed her was two teaspoonfuls of toast-water, given every hour."—P. 341.

Nourishment was given by the administration of beef-tea enemata.

Dr. Hughes very judiciously cautions the reader against the use of stimulants and purgatives in all cases, where there is the slightest ground for apprehension that perforation of part of the alimentary canal either is imminent, or has taken place. We are inclined to extend the same advice to very many cases of Ileus, or Obstruction of the Bowels, when there is any tendency to inflammatory symptoms supervening. A vast deal of mischief is continually done by persisting in the use of powerful doses of drastic purgatives, when the bowels refuse to act after 24 or 36 hours' administration of those in ordinary use. It is a dangerous error to attribute the constipation to mere sluggishness or torpor of the intestinal tube. There may be, if not mechanical obstruction, spasm or incipient inflammation ; and certainly violent drastics are not the best or safest remedies for the treatment of either of these morbid states.

VII. The case of " *Ulcer of the Stomach, leading to Perforation and Death in* 19 *hours,*" related by Mr. Ray and Mr. Hilton, exhibits several points of resemblance to the case of supposed rupture just given. Both patients were young women, the one 28 and the other 27 years of age ;

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* Does not the circumstance of the catamenia having appeared within 60 hours from the invasion of the alarming symptoms, and continuing to flow for two days as in health, argue somewhat against the idea that so serious an accident as rupture of the stomach was present ?

and both had been suffering from symptoms of stomach ailment. In both, the attack of pain in the epigastrium was sudden and so severe as to occasion alarming prostration. (We had written so far before we discovered that the patient was the same in both cases; the second and fatal attack occurred four months after the first; she survived only eighteen hours.

Dissection.—On opening the abdomen, a quantity of turbid fluid, containing portions of gooseberries, cherries and strawberries, in addition to very numerous small shreds of soft lymph, was found extravasated among the viscera. Besides the appearances of very recent inflammation, there were extensive old cellular adhesions of the stomach to the liver, and of the stomach and intestines to the abdominal parietes.

" The stomach presented a central constriction, known as the hour-glass contraction of the stomach, but not in the extreme degree. A little gentle pressure upon the stomach, caused some air and fluid to escape from amongst the old adhesions at the smaller curvature of the stomach, and so discovered to us the abnormal opening from it into the peritoneum, about midway between the œsophageal and pyloric apertures. A long incision was then made through the anterior wall of the stomach near its lower edge, parallel with the larger curvature; and on turning this part upwards the contents of the stomach were seen, composed of cherries, strawberries, and gooseberries, scarcely broken. These were aggregated at the pyloric extremity of the stomach, and completely filled it. The abnormal opening from the stomach at its smaller curvature was also immediately seen, occupied by a piece of a strawberry."

" The mucous surface of the stomach was healthy, except at about midway between the œsophagus and pylorus (at which parts the circumference of the stomach was diminished, corresponding to the external hour-glass-like constriction), and towards the smallest curvature, where it presented the rugæ of the mucous membrane radiating towards the pylorus from a small surface, which had all the appearance of a cicatrix of an old ulcer; half an inch below this part was seen a recent ulcer, about the size of a fourpenny-piece, irregular in outline, its edges unequal in thickness, and highly vascular: it had extended through the mucous membrane, the sub-mucous fibrous structure, as far as the muscular fibre. On looking to the peritoneal surface of the stomach corresponding to the internal position of this ulcer there was no evidence of any recent inflammation. About half an inch above the cicatrix, to which reference has been made, was placed the base of the conical canal, passing upwards and backwards obliquely through the stomach, which had allowed the escape of some of its contents into the peritoneum, and so caused the death of the patient."—P. 346.

Mr. Hilton is of opinion, from the consideration of all the phenomena exhibited on dissection, that " the perforating ulcer, which caused the patient's death, was the same which induced her previous illness; and that the peritoneal opening became closed by the deposition of adhesive matter around it, fixing it to the nearest organ, the liver; and that the occlusion was complete up to the period of the beginning of the recent fatal symptoms, when some of the old adhesions were detached or broken through, from the distention of the stomach by a large quantity of fruit, or possibly by some other mechanical cause, which does not appear, and so allowed the second escape of the contents of the stomach into the peritoneum. This latter is the explanation at which I arrive, because the cicatrix, to which reference has been made, does not extend through the entire thickness of the walls of the stomach, which negatives altogether the idea of

perforation at that part; and, further, from the fact that there was seen, at the inspection of the body, a thick layer of old lymph, in part detached from the peritoneum, over the opening, allowing of an escape through it, but which, during its super-position, as regarded the opening, would have as completely prevented any occurrence of the kind."

. VIII. The article on certain " *Appearances in the Stomach after Death*," by Mr. Wilkinson King, is written in such a strange pedantic style as to be scarcely intelligible. Our readers would not thank us, we are sure, for any extracts: and we therefore at once proceed to notice the " *Digest of* 100 *cases of Chorea, treated in the Hospital*," by Dr. Hughes.

Of these 100 cases, 73, or nearly three-fourths, occurred in females. The greater nervousness of constitution in girls and their consequent greater susceptibility to all external impressions, and especially to one principal exciting cause of the complaint, Fright, will partly account for this very marked preponderance. The changes, too, induced in the female system on the approach, and from irregularities, of the catamenial secretion, may have something to do with it.

In three of the cases, the sudden suppression of the menses, resulting from fright, is mentioned as the immediately-exciting cause of the attack. " I believe," says Dr. H. " it will be found that females who have passed the age of puberty are rarely affected with chorea, unless they be troubled with some irregularity of the periodical function of the uterus, or unless the complaint be clearly connected with rheumatism, or with disease of the brain or spinal-marrow."

Age.—Of the 100 cases, 33—11 in males and 22 females—occurred at or below the age of ten years; 45—11 in males and 34 in females—between ten and fifteen; and 22—5 in males and 17 in females—above the latter age. Above eighteen years of age, the number of males affected was the same as that of females, viz. 4. It may be also worthy of notice that the two youngest patients, aged five and six, were males.

As to the *alleged exciting causes*, it is difficult to speak with any degree of confidence. 31 cases are referred to fright; and 8 to rheumatism, simple or complicated. We extract the remarks of our author on the connection of Chorea with Rheumatic Affections.

" The connection between the two diseases has been often noticed; and the frequent occurrence of spasmodic affections with pericarditis, which, in the great majority of cases, is of a rheumatic origin, has been particularly illustrated by Dr. Bright, and, more recently, by Dr. George Burrows. It appears at least doubtful whether, in most of such cases, there exists anything more than a sympathetic affection of the spinal marrow; seeing that after the removal of the rheumatic affection the chorea is usually curable by the same remedies which are found available in cases of chorea having a different origin. There are, however, some exceptions, in which the membranes of the cord seem to be inflamed and thickened, and in which local depletion, counter-irritation, and the continued action of mercury, appear to be the means more especially calculated to remove the complaint, which, in such instances, is often very rebellious.

" Among the fifty-eight cases in the table in which, after inquiry, either no exciting cause could be ascertained, or a particular cause of the complaint is mentioned, eight are enumerated as having their origin more or less directly in

rheumatism. The number, amounting to nearly 14 per cent., may be, perhaps, regarded as a fair average."—P. 376.

In some of the cases of rheumatic complication, there was Pericarditis present.*

Treatment, mode and duration of.—With respect to the latter point, it would seem that, in an immense majority of the cases, the patients were under treatment for from three weeks to two months. We shall now briefly notice the results of the principal modes of practice that were tried.

To trust entirely, or even mainly, to the use of *Purgatives*, in conjunction with good diet, and, it may be, wine also, as some have advised, is a practice that cannot be favourably spoken of. There is a form of tonic aperient however, which may often be used with very great advantage, more especially in the weak, ill-fed children of the poor. This is a cold infusion of Rhubarb (3 ss. sliced) in port wine (℥ viij) ; two or three tablespoonfuls may be given thrice a day.

"The effect of this medicine, together with good diet, is often very remarkable; not only upon the disease for which it is prescribed, but also upon the health, strength, and general appearance, of the little patients. It must be, however, acknowledged that, while it improves the general health, it sometimes fails in curing the complaint."—P. 383.

We need scarcely say that the state of the bowels must be carefully attended to in every case of Chorea, without exception ; as the irritation of unhealthy secretions, worms, &c. is well known to aggravate every spasmodic disease. But this is a very different thing from following the purgative plan of treatment.

Mineral Tonics.—Different practitioners have given a marked preference to different sorts, and different preparations, of this class of remedies.

"While one regards Arsenic as a specific for true chorea, another cures nearly all his cases with the sulphate or the oxide of zinc; and another considers the sulphate or carbonate of iron as an almost infallible remedy. This may perhaps arise, in a great measure, from habit. It is possible that all may be nearly equally efficacious. I have seen each of these, and many other remedies, occasionally cure the complaint; and I have seen them all occasionally fail. I have seen zinc cure after arsenic and iron had failed; and iron cure after zinc had failed. Iron sometimes acts with excellent effect, and with great rapidity, after zinc has been administered for weeks, and in large doses, without any, or scarcely any, impression being made upon the disease. It also frequently acts exceedingly beneficially in improving the general health, and completing the cure, after that has been, in a great measure, effected by the administration of zinc."—P. 385.

According to Dr. Hughes' experience, *Arsenic* is not so useful as other

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* Whenever there is any tendency to Chorea or other Spasmodic affections, the debilitation of the system has invariably a tendency to aggravate the complaint. There cannot, we think, be a doubt but that the condition of the circulating fluids has a good deal to do, if not with the induction, at least with the persistance of Chorea. As far as we know, medical writers have not yet ascertained with sufficient precision whether cardiac or vascular murmurs are generally present or not, independently of any rheumatic complication ; and whether, if present, they subside as the patient gets well.—*Rev.*

mineral medicines; but he has not used it in many cases. *Iron* is especially well suited to chlorotic females, to girls approaching the period of puberty, and to anæmic children. It was usually given in the form of the sulphate, with extract of gentian, the sesqui-oxide, and the compound steel mixture. *Zinc* was more largely administered than any other metallic preparation, and usually in the form of the sulphate. "Beginning with one or two grains three times a day, it has usually been gradually increased by a grain to each dose at each visit twice or thrice a week; or by adding one grain daily to the whole quantity taken in the day. It has been given either in the form of pill or in solution. The dose has been increased up to thirty-six grains, three times a day. It has not often caused sickness. The stomachs of some persons, however, appear unable to bear it, even in small doses; and in others the organ rebels against its increase, after a certain number of grains has been attained."

> "Zinc was prescribed in .. .. 63 cases
> Of these, it effected a cure in . ... .. 45 .. or 71 per cent.
>   it relieved in .. .. 2 ..
>   it failed to effect a cure in .. 16 .. or 25 per cent.
> "In seven of the forty-five cases, iron had previously failed; the zinc was given together with iron in one, and together with the administration of electricity in five cases. In two cases the zinc was given in the form of oxide."—P. 387.

Electricity.—The effects of this remedy in Chorea, are sometimes remarkable. Occasionally it will effect a cure, and this too rapidly, after a great variety of remedies has been tried in vain; in other instances, it does harm rather than good. "The cases in which it appears to be more especially applicable, are those occurring in young women, in whom the disease assumes somewhat of a hysterical character, and those protracted cases in boys, in whom other remedies have been tried ineffectually, and in whom the disease is dependent upon no obvious source of irritation, and has an injurious effect upon the general health, instead of being affected by it."

Shower Bath.—Dr. Hughes rather oddly remarks, that he is not able to judge of the influence of this remedy, when employed *alone* in the treatment of Chorea. Who would ever be so mad as to do this?—except indeed some of your French *experimentateurs*, determined at all hazards to dress up some statistical table or another, in the way of a report!

Shower bathing is certainly not suited to all cases. Much will depend upon the circumstance whether the young patient likes it or not, and also whether a feeling of general warmth is induced after its use. It is therefore to be regarded as a mere auxiliary, but never as the principal remedy.

Results.—Of the 100 cases, the general result was—

> "Cure in   ..   ..   80 cases
> Almost perfect cure in   ..   ..   7 "
> Relief in   ..   ..   6 "
> Little improvement in   ..   ..   4 "
> Death in   ..   ..   3 "
>
>   Total ..   ..   100 "

Of the 3 fatal cases, one occurred in a young woman, 17 years of age,

and was accompanied with suppression of the menses; in another, death was the result of an attack of Pericarditis, in a girl 16 years of age ; and in the third, which occurred in a man, 25 years old, the malady appears to have been connected with disease (although not extensive or well-marked) in the cerebro-spinal axis.

The last patient occurred in Dr. Hughes' practice at the hospital, about two years ago. Without any obvious cause, the patient became affected with twitchings in both hands : in the course of a few days, these irregular movements extended to the arms; next to the face, and organs of articulation; then to the legs and to the trunk; so that, when admitted, he was in a lamentable state of jactitation in every part of the body. The mouth, eyes, trunk and limbs were twisted and turned in every possible direction, without a moment's cessation. The motions and contortions were so violent as to throw him out of bed, even though boards were put at the side for his protection. He was all this while perfectly sensible; nor was there paralysis of any part. Tonics and generous diet were ordered. He did not sleep a wink during the night, being in a state of constant and violent motion the whole time. Next day, he was much exhausted; and as the convulsive movements continued as severe and incessant as ever, it was manifest that, unless sleep could be procured, he could not last long. Opium was given repeatedly, but with no effect. He died about 40 hours after admission into the hospital.

The report of the *dissection* is as follows:—

"Head : a small quantity of blood was spread thinly over the arachnoid, on both sides of the vertex; but it was doubtful if this might not be the result of violence in removing the calvarium. The edge of the fornix on the right side was much softened; and the surface of the third ventricle tumid, red and soft. No other morbid appearance was observed in the brain. Spine: the rachidean fluid was opaque, yellow, and largely coagulable by heat, and the medulla, upon section, was thought to be softer than natural. Chest: evidence existed of slight pleuritis and pneumonia. The blood was thick, dark, and fluid. Patches of ecchymosis existed below the attached pericardium and the endocardium. The lining of the aorta was dyed by the fluid blood, and its root sprinkled with atheroma."—P. 392.

Whether our readers will agree with Dr. Hughes in regarding this anatomical inspection as " especially valuable," we leave to themselves to decide. The case is a remarkable one of fatal Choreic Convulsions. A *priori*, we should certainly expect the Spinal Marrow to have been the seat of the chief pathological changes: but alas ! morbid anatomy throws but little, if any, light upon too many of the Neuroses.

IX. Cases and Observations in Medical Jurisprudence. By *Alfred Taylor*, F.R.S.

As Mr. Taylor has so deservedly acquired a high reputation for skill in medico-legal enquiries, more especially in those which relate to Death from Poisoning, and as, most unfortunately, instances of this description seem to be on the increase each successive year, it is highly necessary for medical men to be fully prepared for the performance of those duties which moral,

as well as legal, justice requires of them. This can only be done by having their attention frequently drawn to the narratives of the more important cases as they occur. We shall therefore briefly notice those which Mr. Taylor has recorded in this paper.

1. The first case is one of fatal Poisoning from Sulphuric Acid. The sufferer was an infant, only four months old. The medical man first called gave magnesia and carbonate of soda in frequently-repeated doses. Subsequently, lime-water with breast-milk was administered ; then nitrate of potash in combination with the compound tragacanth powder. The infant survived 25 days. Great praise is due to the skilful treatment of the surgeon in attendance, Mr. Tatham of Wandsworth. Perhaps it would have been better, if chalk had been administered in place of magnesia and soda, as the sulphuric acid forms soluble aperient salts with these bases ; and the diarrhœa thereby induced might prove troublesome.

On *dissection,* no distinct morbid appearances were discoverable in any part of the alimentary tube.

The matter, that was at at first rejected by vomiting, was of a glairy grumous nature, thick, and of an almost black colour. This was subsequently analyzed by Mr. Taylor, and shown to contain distinct traces of sulphuric acid, by testing it with a salt of barytes, the white precipitate so formed being insoluble on the addition of nitric acid. With respect to the physical appearances of the vomited matter, Mr. Taylor observes that the acid " *must have been evidently taken in a concentrated form, from the dark .and carbonated appearance of the matter ejected.** It is only concentrated vitriol which thus chars and decomposes blood, mucus, and other organic substances ;* and by this action it becomes itself decomposed and partially lost.''

The report drawn up by Mr. Taylor was for the use of the Wandsworth magistrates. The person upon whom suspicion fell, was a servant girl in charge of the child. The sulphuric acid had been obtained for the preparation of blacking. That the infant had perished from the effects of this most corrosive poison, somehow given to it, could not be disputed, after the convincing medical and chemical evidence adduced ; but then, it was argued by the prisoner's counsel, that the oil of vitriol had been administered, in mistake, for aniseed water, by the mother of the child, and not by the servant. The jury, being not satisfied of the guilt of the latter, acquitted her.

Mr. Taylor enters upon a lengthened examination of the various circumstances connected with the medical and chemical evidence of the case, to show that it could not have been the mother who had accidentally administered the poison. The facts and reasonings which he adduces must satisfy, we should think, every reader.

2. The next case reported is one of Profuse Salivation, following the use of small doses of Calomel in Nephritis, and proving fatal. The case occurred about twelve months ago at Reading, and the party inculpated

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* " I place these words in italics, as the defence set up was that the acid was taken in so *diluted* a state, as not to have the power of *carbonizing sugar!* See Mr. Tatham's evidence, p. 417."

was an unlicensed practitioner who resided in that town.   It seems scarcely
necessary to give the particulars ; our chief object in mentioning the case
being to allude to the point of practice as the propriety of administering
mercury, to the extent of salivation, in cases of disease of the kidneys.
According to Mr. Taylor's observations, " it may be clearly admitted as
a general rule that mercurial preparations, even in small doses, are liable
to produce excessive salivation in persons affected with renal disease."
Certain it is that the system is unusually apt, in many such cases, to be
most rapidly and severely mercurialized.   Mr. Harrison, a surgeon of
Reading, mentioned, upon the present trial, two cases of this sort.   One
occurred in a woman affected with Bright's disease ; one drachm of mer-
curial ointment was rubbed in upon her side ; profuse salivation and ex-
foliation of the jaw followed.   In the other case, said to be of Atrophy of
the Kidneys, the most intense salivation was produced by two grains of
the *Hydrarg. c̄ Creta!*

The following extract from a letter recently addressed by Dr. Christi-
son to Mr. Taylor, on the point under consideration, will meet with
attention : it takes a sober and, we think, a right view of the question.

" In cases of this disease (granular degeneration of the kidneys) I have re-
peatedly observed that mercurial action is brought on by unusually small doses
of the compounds of mercury, or unusually soon; and I have also sometimes
observed the action to be unusually violent in such circumstances.   I cannot say
that I have ever seen violent uncontrollable action induced on any occasion;
neither have I seen mercurial action, even in its slighter degrees, brought on by
the very small doses (such as a single dose, or two doses of calomel) which are
well known to act with violence in certain constitutions not otherwise materially
unsound.

" I suppose, from what some London physicians have written on the subject, and
from the case alluded to by you in your letter, that the constitutional sensibility to
mercurial action, induced by disease of the kidney, has been noticed in a greater
degree in London than here.   At all events, we are not deterred here, by anything
we have witnessed, from using mercury as an adjunct to other remedies, such as
diuretics and cathartics, in granular disease of the kidneys.   We watch it more nar-
rowly, find its constitutional action more easily excited, but experience no difficulty
in controlling this action when brought on."—P. 458.

3. Case of Poisoning by arsenic ; Pregnancy not followed by Abortion ;
Detection of the Poison in an Entozoon.

A young unmarried woman died, after seven hours' illness, of what was
at first supposed to be violent English Cholera.   Suspicions, however,
being awakened, the body was examined ; and the surgeon in attendance
reported that he had reason to believe that the deceased had died from
the effects of some irritant poison : she was in the fifth month of preg-
nancy.   On analysing the contents of the alimentary tube, a large portion
of arsenic was readily discoverable.

As there was a *lumbricus* found in the ileum, Mr. Taylor was desirous
of ascertaining whether it had become impregnated with the poison which
had caused death.   It was first carefully washed from all adhering mucus
or blood, and then cut into pieces and boiled for two hours in one part of
muriatic acid and eight of water.   Traces of arsenic were readily discovered
in the acid liquid, previously filtrated.   Mr. Taylor expresses his regret
that he had not the opportunity of examining the foetus in this case, as

" the analysis of some of the organs might have thrown light on the absorption and diffusion of poisons."

4. Passing over three cases of Poisoning by Corrosive Sublimate, we come to the case of Poisoning by Lead, which is interesting alike in a diagnostic and in a medico-legal point of view. When the patient, a woman of the most intemperate habits, was received into Guy's Hospital, it was not known that she had swallowed any poisonous matter. Constipation, vomiting, and severe constant pain in the loins and abdomen were the most conspicuous symptoms of her case. On the third day after admission, *a distinct blue line was noticed on both gums*; and it was found at the same time that the patient could not extend her wrists completely out. She died, a few days subsequently, convulsed. It seems that no direct information could be obtained by the medical officers as to whether the woman had ever swallowed any poison, or not; but the symptoms now named naturally suggested the probability of lead having been the toxic agent. It was therefore an interesting point to determine whether the parenchymatous substance of any of the viscera contained traces of this metal.

The dissection, we may remark, revealed nothing very satisfactory to account for death; perhaps the most remarkable appearance was the irregularly contracted and distended state of the large intestines. We shall give Mr. Taylor's account of his chemical examination of the Liver —the organ, in which Orfila and others have generally best succeeded in detecting the presence of mineral poisons in the tissues of the body.

" The liver was dried and incinerated, and the ash thus obtained was digested in water, containing one-eighth part of strong nitric acid. The acid solution thus obtained contained a large quantity of phosphate of lime and iron, and left, on evaporation, silica, probably derived from the crucible. The acid liquid, evaporated to dryness, was again digested in a small quantity of very diluted nitric acid and filtered. Diluted sulphuric acid gave, with this liquid, a white precipitate, not entirely soluble in potash, because phosphate of lime was precipitated by the alkali from the acid solution. The acid liquid was also precipitated, of a deep greenish-black, by a current of sulphuretted hydrogen gas; and on adding more nitric acid, the sulphuret of iron was removed, and a light-brown precipitate remained, which was sulphuret of lead. A portion of the original liquid was then strongly acidified with nitric acid; sulphuretted hydrogen was passed into it, and a brown precipitate of sulphuret of lead only was now thrown down, the iron being suspended. A portion of the original liquid, nearly neutralised by potash, gave, in a few seconds, the brilliant yellow precipitate, in crystalline scales, of iodide of lead. The galvanic test of zinc and platina did not answer, the quantity of lead present being too small. The tests acted clearly and decidedly, leaving no doubt that lead was present in the liver of the female in comparatively large quantity."— P. 473.

The case which follows is one, wherein a middle-aged woman swallowed an ounce and a half of sugar of lead with the intention of committing suicide. Fortunately she vomited at the time, and no alarming symptoms ensued.

The concluding cases of Poisoning, one from a very large dose of Oil of Bitter Almonds, and the other from Prussic Acid, are instructive in several points of view. In both instances, a period of several minutes elapsed after the patients had taken the poisonous dose, before the fatal effect was induced. In the *first*, it is supposed that the man swallowed

nearly five or six drachms of the oil of bitter almonds ; and that he retained for four or five minutes not only his full consciousness, so as to reply rationally to questions addressed to him, but even his ability to get up from his chair and walk towards the door of the apartment. Then the symptoms of poisoning appear to have come on suddenly ; first vomiting, and almost immediately afterwards insensibility, convulsive breathing, slight opisthotonos, and death. There were no convulsions, if we except the partial opisthotonos ; nor was there any scream or shriek preceding death. This case therefore, as well as others, clearly shows that neither of the symptoms now named can be regarded as, at all, of uniform occurrence in this kind of poisoning.

In the *second* case, two drachms, it is supposed, of the dilute Hydrocyanic Acid of the Pharmacopœia were taken. " The peculiar interest of this case results from the duration of the power of volition after so large a dose had been taken, the deceased having descended *thirty stairs*, and walked about *twenty paces*, before he became powerless ; this happened whilst he was in the act of attempting to open the street door. The proprietor of the house and the servant were in a back room on the ground-floor, level with the coffee-room he passed through upon coming down stairs, and they saw him proceed directly to the door : the servant advanced to open it for him, and had no sooner gained his side than he fell, and, to use her own words, 'threw his arms about, and made a noise in breathing, fetching it hard, but there was nothing approaching to a scream :' he very soon became still."*

Mr. Taylor makes the following remarks upon this case :

" Thus, then, an individual was here enabled to walk, and otherwise exert his bodily powers, after having swallowed more than *two grains and a half* of anhydrous prussic acid ! Many facts of this kind have been recorded of late years ; but I am not aware of any instance in which such a series of voluntary acts has been performed, and such a power exerted, after so large a dose of the poison had been taken. The case, therefore, creates an additional caution ; namely, that we must make full allowance for the occurrence of some delay in the accession of symptoms, even where the dose is large.—P. 492.

In this instance also there was no *scream* before death. It may be also worthy of notice, that the medical gentleman, Mr. Lowe of Aldersgate Street, who was called to the deceased, could perceive no odour of prussic acid about his mouth, although a considerable dose had been taken only a few minutes before.

In closing our notice of these painfully-instructive reports, we cannot but again express our astonishment that the most active poisons should be so readily procurable, in every part of the country, by persons who can have no proper object in view in purchasing them. It is high time that chemists and others, who deal in such dangerous articles, should be prohibited by penal enactments from pandering—we can call it nothing else—to the awful crimes of Suicide and Murder.

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* This description of the symptoms in this instance, by an eye-witness, closely corresponds with the account given by Tawell of those, which he witnessed in the case of Sarah Hart.

I. Conseils aux Mères sur l'Allaitement et sur la Manière d'Elever les Enfans Nouveau-nes.   Par *Al. Donné.* D.M. &c. 2nd Ed. 12mo. pp. 340. . Baillière : Paris, 1846.

Advice to Mothers on the Suckling and Bringing-up of Infants. By *Al. Donné,* M.D.

II. Dr. Underwood's Treatise on the Diseases of Children ; with Directions for the Management of Infants.   10th Edition with Additions.   By *Henry Davies,* M.D. &c.   8vo. pp. 600. London, 1846.

The new editions of these two excellent works furnish us with some interesting matter to lay before our readers.   M. Donné, it is true, is writing more for the public than the profession, and confines himself to the legitimate province of hygiene and the prevention of diseases; but many of his observations are very original and well deserving the attention of the medical man.   Dr. Underwood also intended his well-known work for the perusal of parents, and prepared an abridged edition of it to that end. Happily this move in imitation of Buchan's notorious publication did not succeed, and what would have been a mischievous book in the hands of the public at large, has proved itself a very useful class-book to the professional portion of it.   The portion of the book, indeed, relating to the management of children would be well worthy the attention of parents, but, conjoined as it is to an account of their diseases, it is much better in professional hands.   As the present editor has made no material additions to this part of the work, we shall pass it by as well-known to most of our readers, and content ourselves with abstracting some of his observations on disease ; first, however, turning our attention to M. Donné's Advice to Mothers.

M. Donné commences his work with a chapter on the " *Questions to be resolved prior to the Birth of the Child,*" and, after protesting against the indolent lives which some pregnant women lead, enquires whether we *can determine beforehand that a woman will be enabled to suckle her child,* as far at least as the quality of milk is concerned.   The external characters usually cited as determinative of this, such as the degree of development of the breasts, the colour of the hair, condition of the skin, &c., are not to be relied upon.   " The only circumstance of this kind at all indicative of a certain degree of plumpness (*embonpoint*), the possession of which is usually necessary in a good nurse ; not that a woman need be fat to have good milk, but certainly a good nurse is seldom very thin."   However, there is a more positive sign, for the examination of the secretion from the mammary gland during pregnancy furnishes us with a useful indication of its probable qualities after confinement.

" From among 60 cases in which such examination was made in women of different ages, temperaments, &c., only three exceptions to this law presented themselves.   Women, in reference to the *colostrum,* may be divided into three

classes. In the first, at whatever epoch of pregnancy the breast may be examined, the secretion will be found to be so slight that scarcely a drop can be drawn out by any degree of pressure. In such, to almost a certainty, the milk after confinement will be small in quantity, poor in quality, and insufficient for the sustenance of the infant. The breasts of women of the second class secrete an abundance of a watery colostrum, resembling thin gum-water, and destitute of streaks of a yellow, thick, viscid matter. Such women may have abundance of milk, but it will be poor, watery, and unsubstantial. Thirdly, when the secretion of colostrum is sufficiently abundant to enable us to easily obtain a few drops for examination, and especially when the fluid contains a more or less deeply coloured, thick, yellow matter, distinct in colour and consistence from the rest of the fluid in which it forms distinct streaks, we may be almost certain that the woman will produce a sufficient quantity of rich and nutritious milk. The microscope shows that such colostrum is rich in already well-formed, good-sized milk globules, without mixture with mucous globules, and that it contains more or less of the granular bodies."

This examination may prove of great utility as respects women whose power of suckling their children may be doubtful, and is best made about the *eighth month.* It is well to bear in mind that some accidental circumstances, such as cold or timidity on the part of the woman, may temporarily contravene the success of the experiment.

On Suckling.—M. Donné insists strongly, where it is practicable, that a mother should suckle her own child, observing that many women are well-fitted for this, whom he would not accept as the nurses of the offspring of other persons. This fact must be familiar to our readers, and should be borne in mind when wet-nurses exhibit the thriving condition of their own infant as a testimony of their fitness for the office. Even a medium condition of the general health seems consistent with successful suckling ; and, if no hereditary disposition to disease prevails in her family, there is no tendency to chronic disease in herself, her digestive functions are active, her sleep sufficient, and her milk presents the requisite qualities, the mother should always be advised and encouraged to attempt suckling.

Some young mothers, however, deceive themselves in consequence of the *great abundance of milk at first ;* for even the worst nurses have a large quantity of some sort of milk when they commence suckling, and it is only after from four to six weeks they find it has diminished. They attribute this to some accidental cause, forgetting that a good nurse is not influenced by such ; but if they persist in the attempt, serious consequences sooner or later occur. Other young nurses exhaust themselves by the indiscreet zeal with which they undertake the office, and those who are rather delicate forget the cautions that are necessary. The reparation of the losses of each day is essential, and this can only be effected by the aid of a *good digestion and sound sleep,* the latter being even more important than the former. In her ardour to perform her maternal duties, the anxious mother gives the infant the breast at every moment, day or night, wakening herself at intervals lest it want. •But for a woman of the world, who desires to suckle her child successfully, *from six to seven hours uninterrupted sleep are essential,* and to obtain this she must renounce suckling by night. The infant should not sleep with its mother, and when it wakes in the night, which if it continues well will be only two or three times, a little

milk and water should be given it.   M. Donné dwells also upon the moral
conditions necessary for a good nurse, impressing upon the mother the
necessity of acquiring, for the essential interest of the child itself, a degree
of calmness and composure, and he believes that her entire sacrifice of re-
pose, pleasure and liberty is neither required nor judicious.   Suckling must
be made methodical, and the mother must learn to resist the caprices of,
and acquisition of bad habits by, her infant.   When the child has suffi-
ciently sucked and there is no obvious cause for its cries, she must learn
not to heed them : for it may be laid down as an axiom *"that the mother
who is unable to bear the cries of her child is incapable of educating it."*
This, to mothers, may seem a harsh maxim : but we believe few of our
readers who have witnessed the manner in which an indulgent parent be-
comes the victim of the petulance of a capricious infant will deny its
truth.

Wet-Nurses.—This chapter occupies a large portion of M. Donné's work
for a reason which will enable us to dismiss it with comparative brevity,
viz. Wet-nursing is the general rule in France, the exception in England.
Not only is there a vastly greater proportion of destitute and orphan in-
fants in the former country, but even in the middle and comparatively easy
classes great numbers of women put their children out to nurse (fifteen
or twenty thousand are annually sent from Paris) in order that they may
have leisure to attend to the affairs of life, which with us devolve on the
husband.   The procuring and negotiating for nurses is a separate and
profitable occupation.   Not only has the Government a central depôt for
such women to resort to to be hired ; but numbers of offices are opened
by private speculators, and nurse-brokers scour the country for leagues
around the great towns in search of women who can (and those who
cannot) give suck.   M. Donné gives a sad account of the impositions that
are practised in consequence of the absence of a sufficient supervision, and
the consequent frightful amount of infantile mortality.   Into this we need
not follow him, as happily his remarks do not apply to our own country.
It may be useful, however, to glance at his directions for the *selection of a
wet-nurse:* and the most important of these is the ascertaining the *con-
dition of her milk.*

 " Milk is composed of several distinct parts, some of which are dissolved, and
others swim in the liquid in the form of very fine particles. `The parts in a state
of solution are chiefly the *caseum*, which forms the basis of cheese, the sugar of
milk, and a great number of saline substances, required in tho formation of ani-
mal bodies.   The solid parts in a state of suspension are only of one kind, viz.
the fatty or butyraceous portion of the milk.   So that we may form a just idea
of this fluid if we consider it as an emulsion in which the caseum, sugar, &c., are
dissolved, and the fatty or oily substance is divided into little rounded particles.
These different parts, mixed together, are not distinguishable by the naked eye :
but if we place a drop on a watch-glass, and examine it with a microscope mag-
nifying 300 times, we perceive a multitude of transparent, rounded granules,
resembling small pearls, swimming in a limpid liquid.   These little balls, of which
frequently more than a hundred ranged side by side are required to form the
length of a line, are what are called milk-globules, composed, as chemical agents
shew us, of fatty or butyraceous matter, which, by their union through the means
of churning, form butter.   In pure and unmixed milk we absolutely discover

no other matter than these globules, perfectly distinct, brilliant, freely swimming in the liquid, and of various sizes, from the smallest point to a certain dimension. If this was the only fact we had to examine, its proof would be of importance; since pure milk, collected under the most favourable circumstances, and from the best nurses, never presents a mixture of any other substances. It is therefore an unfavourable indication, of which we must take account, when we meet with other particles than the milk-globules properly so called, as happens under certain circumstances to which we shall presently advert.

"The composition of milk, like that of all fluid intended for the nutriment of new-born animals, is very remarkable. We find in it, as in the egg, all the elements necessary for the nutrition of the young, everything which enters into the structure of the various organs of the body. I shall hereafter point to another very important analogy obtaining between the milk and the blood itself, which it so approaches as to represent its different parts, so that it may be considered as a first state of that fluid—as a sort of blood as yet imperfect, which only wants, so to speak, one more degree of organisation to become true blood. I shall quote some curious experiments, during which we have seen milk injected into the veins, circulate with the blood, supply its place to a certain point, and become rapidly transformed into the sanguine mass."—P. 77.

The richness or nutritious properties of the milk is pretty exactly represented by the proportion of globules it contains—the sugar and caseum being usually proportionate to the amount of these. The utility of the *microscope* in deciding upon the quality of milk is therefore obvious. The results obtained by it and those procured by the more elaborate and difficult means of chemical analysis are in perfect accordance. The amount of cream furnished by milk affords a good approximative means of measuring the richness of the fluid—the globules rising, like all other oily substances in denser fluids, to the surface in the form of cream. The proportion of cream may be exactly ascertained by means of the *lactoscope,* or by small graduated tubes. M. Donné found that 100 parts of good human milk admitted into one of these tubes furnishes three parts of cream, the milk of the ass but one or two parts, and that of the cow from 15 to 20 parts. A *too poor milk* is one of the commonest causes of want of success in suckling. The infant dwindles away, while the cause is frequently overlooked in consequence of the milk, though poor in the amount of globules, being abundant in quantity. Poverty of milk is also often found when it is small in quantity; but the two circumstances are in no-wise connected, for there may be short supply of rich milk. This is only injurious because the alimentation is incomplete; but an abundance of poor milk may occasion great derangement of the digestive organs. "On many an occasion I have shown the coincidence of diarrhœa, or even muguet, with impoverished milk." But M. Donné has also frequently observed the ill effects resulting from a *too rich milk.* Children living in towns, and possessed of only a medium digestive power, may sometimes in this way be injured by the too nutritious milk of a strong country nurse. Most escape the consequence by reason of the facility with which they vomit, but this is not the case with all. In meeting this difficulty we must bear in mind the experiments of M. Peligot, from which it results that the longer the milk *remains in the breasts the more aqueous it becomes;* and likewise, if we divide the result of one milking of a cow into three portions, we shall find *that the first (or that longest secreted) is the most watery, the second richer, and the third richest of all.* So that, when the milk given to a child is too

rich for it, we should elongate the periods of suckling ; in this way giving
the comparative feeble digestion time to digest each meal, while the con-
sistence and richness of the milk become diminished during its sojourn in
its reservoirs.

The milk may be subjected to *changes* either from the admixture of mor-
bid matters foreign to its composition, or from an incomplete development
of its proper elements, whereby an imperfect formation becomes persistent.
" The colostrum contains more or less perfect milk-globules, united in
little masses by means of a mucous substance, and corpuscles of a peculiar
character to which the name of granular bodies may be given. The colos-
trum is not converted into milk, properly so called, immediately after con-
finement ; and even when the viscous yellow colour of the fluid has become
changed into the dead white of milk, the microscope may discover in the
best nurses, for two or three weeks, some of the granular bodies swimming
in the fluid." This is of no consequence; but in some women this colos-
tral element persists for weeks and months ; and in persons, where milk
had hitherto been normal in composition, the granular bodies become de-
veloped under the influence of general disease or any local affection of the
breasts. Milk of this description acts injuriously on the digestive organs
of the child, and produces various symptoms which disappear as soon as a
pure milk is substituted.

A more serious change is produced in the composition of milk by the
presence of *pus*. An abscess of the breast will give rise to this when situ-
ated in the midst of the mammary gland, and in communication with the
lactiferous tubes. When not so situated, it will only produce the vitiation
in the condition of the milk before alluded to. But there may be suppu-
ration in some deep-seated portions of the gland, without any external
symptom ; and M. Donné alludes to instances in which he has detected
the existence of such, solely by the examination of the milk by the micros-
cope. This is indeed the only means of detecting a small proportion of
pus intimately blended with the milk, and is quite satisfactory ; for, although
there are both pus and milk-globules, these differ much from each other.

" The milk-globules, as I have said, are little spheres of various sizes, perfectly
distinct in their contour, transparent in their centres, and soluble in æther like
fatty matters. The others, on the contrary are all nearly the same size, having
a diameter of about $\frac{1}{100}$ of a millimetre ;' they are fringed, granular, slightly
opaque, insoluble in æther, but dissolve in ammonia, which does not affect the
milk-globule. Moreover, the pus-globules, like all azotic matters, are changed to
a yellow colour by a solution of iodine, which exerts no effect on the colour of the
milk-globule."—P. 102

Even supposing we had no positive proof of milk so contaminated acting
injuriously upon the child, prudence would lead us to remove it from such
a breast. But, in fact, such experience does exist; " and so frequently has
M. P. Dubois observed mischief result from the suckling children under
these circumstances, that he always orders an immediate cessation of suck-
ling on the part of any woman in whose breast the formation of an abscess
is menaced. In fact, this is the best practice for both mother and child ;
for, so far from diminishing the engorgement of the organ, suction increases
the inflammatory action, and makes the case worse. The breast should be
left entirely at rest, and covered with an emollient poultice." M. Donné

has nearly constantly observed that women troubled with cracked nipples have a spare quantity only of impoverished milk, very unfit for the nourishment of an infant.

The author has a long and excellent chapter upon the *General Regimen of Infants*, in which he delivers some sound precepts well worthy the attention of parents. He especially dwells upon the absolute necessity of young children spending a very large portion of the day, indeed nearly all of it in fine weather, *out of doors*, and some portion of it in all weathers, properly protected from cold. This he considers one of the most vital points, and we quite agree with him in his estimate of its importance. We may notice some of his observations upon *Sleep*.

Feeble and badly-nourished young infants sometimes take an inordinate quantum of sleep, which in some sort acts as a compensation for their deficiency of nutriment ; so that whenever the sleep of a young infant is much too prolonged, we must direct our attention to the condition of the milk of its nurse. It is a most mischievous practice to accustom a child to be nursed to sleep. In many cases it will eventually sleep in no other way than on its nurse's arms or knees, and in this manner its sleep is less refreshing than it should be, and the nurse ceases to have the control over the child she should possess. It should be an invariable rule for the child to go to sleep on its bed, and to let it lie awake until it does so ; and if the child has already contracted the habit of sleeping otherwise this may be broken, if the firmness of those having charge of it will enable them to disregard its cries on the indulgence being refused. This resistance is usually neither long nor obstinate. So too children should be accustomed, as they easily may, to sleep amidst noise and disturbances around them. In this way, when the child wakes up amidst any slight noise, it is not alarmed, as it is when habituated to extraordinary precautions for ensuring silence. Many children are allowed to continue the habit of sleeping in the day time until too late an age. Prolonged and frequent sleep is necessary for young infants ; but by the 18th or 20th month the sleep during the day may be abandoned. Indulgence in it is very often the means of preventing the child being taken out during the period of the day when the sun in a portion of the year is alone visible—to the great detriment of its health. Very young children sleep well enough during their promenade. The results of a habit are too often mistaken for real wants ; and in breaking through the custom the child may seem, for the first few days, dreadfully fatigued ; but in a week or a fortnight new and more advantageous habits become established, the child increasing in vigour and development by reason of its greater exposure to the air and sun's rays. " Every one may observe for himself that children who are not accustomed to sleep during the day are generally stronger, firmer on their limbs, more active, and possessed of a better appetite than those who are allowed to sleep away the finest portion of the day." Finally, deprivation of sleep in the day imposes the absolute necessity of putting the child to bed very early, and no consideration whatever should induce a departure from this rule.

An interesting paper concludes Dr. Donné's work upon the " *Employment of Regimen as the Means of Treatment of some of the Diseases of Children ; especially country air and milk diet.*" M. Donné states that he has much more faith in a rightly-directed regimen for the diseases in infants

than in remedies properly so called. "Regimen comprehends a certain number of means, no one of which separately exerts any energetic action, but which united in their operation are capable of imprinting important modifications on the economy. Remedies on the contrary produce by themselves a marked and appreciable effect upon this organ or that function."

Owing, however, to the imperceptible and indirect operation of regimen, it is usually imperfectly and partially followed out with little confidence in its efficacy. Of course, for a large class of persons, the complete observance of an appropriate regimen becomes an impossibility ; but this must not prevent our laying down rules by which those more fortunately situated may profit, and which others can observe as nearly as circumstances will allow them. It is a great misfortune that medical men are not more often consulted for the purpose of preventing disease, or opposing any tendencies to it, by a well-regulated hygiene. The disease once fully formed his cares are often too late, while its remote cause, a badly directed regimen, is constantly overlooked. The physician and the parent should both possess the moral *courage* to recognise the possibility of the occurrence of disease in certain constitutions, and to commence in the direction of the regimen the means of prevention, instead of waiting until the morbid explosion reveals itself. A *country life*, and *living much in the open air* are especially beneficial to the extremes of life—infancy and old age. Children, however, may be nearly constantly in the open air in the gardens and squares of cities, and yet never acquire the robust health which even a few weeks' residence in the country imparts. Not only does country air act beneficially upon them when out of doors, but perhaps even more still during their sleep within.

Milk Diet.—Struck with the analogy which obtains in the composition of blood and milk, the author has been accustomed "to regard milk as blood in its first degree of formation, and requiring but one more degree of elaboration to become perfect blood." He instituted numerous experiments in proof of the physiological relations of the two fluids. Milk injected into the veins of reptiles, birds and mammiferæ excited no disturbance of any function any more than as if a like quantity of blood had been thrown in. Moreover, the milk-globules so injected gradually underwent modification and conversion into pure blood, just like the globules of chyle. The horse offered a remarkable exception, for the smallest quantity of milk injected into the veins of this animal produced death, oftentimes instantly. Milk of various animals was employed.

The diseases to which infants are most liable, are *affections of the digestive organs*, and these are often very obstinate, compromising life or destroying the strength and impeding the development of the child. In the treatment of the diseases, it is true, the diet is modified, and various descriptions of milk are resorted to ; but the alimentary regimen is merely considered as an accessary means, and not as the fundamental measure, the chief reliance being placed upon the employment of remedies properly so called. It is too often attempted to speedily cure such derangements, which will only yield to patience and a careful sustenance of the child's exhausted powers. It is true that this precept is of most difficult

observance, inasmuch as parents are ever anxious for active procedures. There is no class of diseases in which the expectant and observant system of medicine is so advantageóus as in that of infants. When ordinary regulation of diet and simple measures fail to relieve, and the child continues to get weaker, the milk regimen should be at once exclusively adopted. M. Donné tried numerous experiments upon the respective power which milk and broths possess in the nourishment of young animals, and these invariably established the marked superiority of milk. Used in the cases now under consideration, milk must be the *exclusive* article, and not employed alternately with other substances, when it will be rarely successful. According to the case it may be diluted with water, or combined with fæculent substances. It should be slightly sweetened and given tepid, having been made warm in a bath. The child quickly acquires a liking for the food, and soon augments in strength and weight. A dullish condition of the skin, and a white appearance of the stools are usually observed, but are of no consequence. Cow's milk, as a general rule, will be most suitable, and instead of diluting it with water, a portion of that first milked may be selected. In other cases, however, asses' or human milk is more easily digested. The two latter milks are always distinctly alkaline, while that of the cow may be neutral or even slightly acid. Cows fed on carrots produce a more digestible milk than those which are fed on beet-root, when the milk is richer. Medicinal substances, such as iodine or alkalis, may be introduced into the milk by mixing them in the food of the animal; and in this way salt renders it more savouring and more easy for keeping. If under the use of one of these milks the child fails to improve, or if at first its case is far advanced, human milk should be at once resorted to, and its effects are sometimes wonderful, children, and in some cases adults, reduced to the last stage of exhaustion, being effectually restored by its use. The nurse must, however, be carefully chosen, her milk not being too recent lest it retain some of the purgative qualities of the colostrum, and in sufficient abundance to admit of its being milked out, as a child who has been long weaned, will rarely take to the breast again. This last is often a difficult point, for the best nurses may have the greatest difficulty in obtaining milk except under the influence of suction : and even when the milk is ever so abundant, one woman will not suffice to the wants of a sick child placed on milk regimen, &c.; and in some cases four, five, or even six have been required. The milk should be given fresh from the breast and not kept and warmed up, when it usually disagrees with the child. Upon an average this regimen may be required for about a month, after which time the child must be gradually brought, the disorders of the digestive organs having ceased, to bear light animal broths and its ordinary food. ·

We may now notice some of the additions made by Dr. Davies to the new edition of Underwood ; and first, a portion of his observations on the

Effects of Remedies.—Among the APERIENTS, *castor-oil* is usually prompt and easy in operation, and is especially indicated in the case of indurated fæces, accumulated acrid secretions, or failure of other purgatives. It is highly irritating when the mucous membrane is in a state of irritation, or inflammation, as in dysentery. *Manna* seldom suffices alone, but increases

the activity of other aperients, especially magnesia. *Magnesia,* from its antacid qualities, is well adapted for children ; and, when saturated with lemon-juice, it forms a good laxative, which is often borne by the stomach when others are rejected. *Rhubarb* is one of the most eligible aperients ; evacuating the canal and restoring its tone, it invigorates digestion and acts as a general alterative. It is advantageously combined with magnesia or sulphate of potass. The following is a useful alterative aperient; ℞. *Pulv. Rhei., Sodæ Sesqui-Carb.* āā ℥ss., *Aq. M. P.* ℥xxij., *Syr.* ℥ij. M., each half ounce containing five grs. of rhubarb and soda. *Saline Aperients* are especially indicated in the febrile and inflammatory affections ; but they should be preceded by some substance capable of evacuating the canal, or combined with rhubarb or senna. The sulphate of magnesia forms a mild purgative in doses of from 5 to 15 grs. The tartrate of potash combined with senna, disguised by liquorice and an aromatic tincture, is an efficient one ; and the sulphate of potash united with rhubarb has long been esteemed. *Calomel,* when prescribed for the discharge of morbid secretions and fæcal accumulations, should be given in large doses, small ones producing violent griping without purging or vomiting. It may be followed by some active aperient or an enema. On ordinary occasions, calomel may be combined with magnesia if there is acidity, or with a sedative when spasm is present. *Hydr.* c̄ *Cretâ* is a milder mercurial, which may be given in larger doses than calomel, being very useful where acidity, with or without diarrhœa, is present. *Senna* " is an excellent active purgative and a most efficient one in febrile and inflammatory affections, for the purpose of removing mucous sordes from the first passages of phlegmatic torpid children." The following formula is recommended by Dr. Davies. ℞ *Potass. Tart.* ℈ij. *Inf. Senn. C.* ℥xv. *Ex. Glyc.* ℈ss. *Tr. Card. Co.* ℈j. *Sp. Ammon. Ar.* ♏xij. *Dose* ℈ij. *ad* ℈iv. The infusion may also be advantageously combined with tonics or bitters. Where senna is wished to be given disguisedly, a drachm of the leaves should be macerated during the night in an ounce of *cold* water, and coffee prepared with the strained fluid in the morning. *Jalap* promotes a copious discharge from the exhalents and in moderate doses does not gripe. Ipecacuanha adds to its power and the combination is very suitable in diseases of the chest. The *Pulv. Jalap. Co.* is an excellent form for promoting serous discharges from the bowels in dropsical effusion after scarlatina. *Scammony* given alone causes severe griping. When the bowels are torpid or loaded with slimy mucus the Compound Powder, or equal parts of scammony, rhubarb and sulphate of potash with an aromatic, should be given. *Aloes* is valuable when a vermifuge or a continuous and slow stimulant action is required. In some cases of habitual costiveness, rubbing the abdomen every night with one of the following applications has been found useful : ℞. *Pulv. Aloes,* ℥ij. *Auxunge,* ℥vj. *M.*—or ℞. *Linim. Saponis,* ℥vj. *Tr. Aloes C.* ℈vj. *M.*

Enemata are valuable remedies. They may be administered for—1, the evacuation of the contents of the bowels; 2, the removal of ascarides; 3, the production of anodyne, astringent or carminative effects; and 4, the conveyance of nutriment. In the first case, the enema should be large and thrown up with moderate impulse ; in the second, it should be still larger

but slowly administered; in the third and fourth, it should be small in quantity and slowly injected, the object being to insure its retention.

" In cases of distension from flatus, benefit sometimes results from allowing the ivory pipe, detached from the bottle or tube, to remain in the anus, thus leaving a free outlet for the escape of gaseous matter. The proportionate quantity of fluid for infants and young children, is from 1 to 4 ozs.; for children from 2 to 5 years old, from 4 to 6 ozs.; and for older ones, half-a-pint. The dose of the active ingredient of an enema has been estimated at triple that which is taken by the mouth; but we believe a much larger proportionate quantity may be sometimes administered with benefit. It has been observed, that the intestine of infants and young childrenl oses its tones by over-distension, which happens when several enemata are administered in succession and retained. Relief may, in these cases, be afforded by passing up a large elastic-gum-catheter."—P. 134.

Emetics.—Dr. Davies has some useful observations upon the indications for the administration of emetics, one of which we extract. " Independently of their general utility in relieving an overloaded stomach, their occasional exhibition is beneficial in scrofulous or delicate children with voracious appetites, but feeble powers of digestion. In these cases, an emetic not only frees the opressed stomach, but benefits the system at large by the stimulus given to exhalation and absorption, thus aiding in the resolution of strumous deposits." *Ipecacuan* is spoken of with well-deserved praise ; but we think *Antimony* is rather too incautiously mentioned. The following formula of the two combined is recommended by Dr. Davies for general purposes. ℞. *Ant. Potass. Tart.* gr. j., *P Ipecac.* gr. xiij., *Syr.* ℥ij., *Aq.* ℥ x. *M.* One or two drachms to be given every quarter of an hour. " It is preferable, when their immediate exhibition is not essential, to give emetics in the evening, as their operation leaves a tendency to sleep and gentle perspiration, both of which it may be useful to promote ; and also give them in such doses as shall excite vomiting twice or thrice at moderate intervals."

Sedatives and Narcotics.—" In all varieties of gastric and intestinal irritation, and in severe cases of protracted diarrhœa, where a child is deprived of rest, warmth and energy, and the intestines of their natural mucous secretions, generating morbid irritability of the bowels, which may terminate in ulceration, inanition, convulsion, and death, *opium* is a sovereign remedy, and is at least less likely to compromise the life of the child, than the irritating and exhausting effects of the disease ; and in these cases opiate enemata and plaisters are particularly serviceable." When laudanum is given it must be administered in minutely divided doses, one of which is given every hour until rest is produced ; and, where costiveness is to be obviated, a little manna may be added. In diarrhœa, a grain or two of the *pulv. cretæ c. c. opio* may be given to a child under a year old, the opiate being said to act more energetically in this form. *Hyosciamus* is less likely to affect the head or disorder the biliary secretion than opium. The tincture may be used during the existence of inflammation, and tranquillizes the great restlessness so frequently observed in gastric fevers. *Extract of Poppy* is less likely to produce cerebral congestion than opium. Half-an-ounce dissolved in hot water forms a good solution for making a poultice th bread ; and, dissolved in decoction of chamomile flowers, it makes a

useful anodyne fomentation. The salts of *Morphia* are very useful ano-
dynes for elder children. " They do not act on the skin or cause head-
ache, dryness of the tongue, or constipation, so much as opium : one grain
of the acetate or hydrochlorate may be dissolved in two ounces of water,
and a drachm of the solution given at bed-time, and repeated, if required.
Half a grain of either of the salts, sprinkled on a blistered surface, is of
great service where it is inexpedient to administer the medicine by the
mouth."

Carminatives.—Infants are much tormented by flatulence, accompanied
with acidity, gripings, and even convulsions. Various carminatives are
given, and as the origin of the distress is frequently improper feeding, an
aperient may usually be advantageously conjoined, as in the following for-
mula. ℞. *P. Rhei, Magnes.* āā ℈j., *Ol. Anis.* gt. ij., *Sacch.* 3j., *Aq. ad*
℥ij. *Tr. Rhei,* 3j. *Sp. Amm. Ar.* ℔xij. Dose, a teaspoonful, adding ℔ij.
of *Tr. Opii,* when there is a tendency to diarrhœa. In spasms from ab-
dominal irritation, an enema of gruel with *tr. of assafœtida* is very useful,
as also friction of the abdomen with *linim. ammon. fort.* and *tr. opii,* or *lin.
saponis* and *tr. opii,* when the abdomen is much distended.

" *Stimulants.*—Medicines which possess the property of rousing the energy of the
system, and supporting the languid and drooping powers of life. *Ammonia* is one
of the most valuable diffusible stimulants we possess as applicable to children. It is
quick and transient in its action, and does not affect the head as spirituous prepara-
tions do. Its use is indicated in eruptive fevers, where the eruption recedes, or comes
out tardily ; and in scarlatina maligna, and some of the varieties of erysipelas, it is
not exceeded by any other medicine. In dyspnœa, depending on debility or spasm,
and in the advanced stages of pulmonary catarrh, where much mucus is accumulated
in the bronchi, it is highly useful. In the latter stages of fevers, or eruptive diseases,
when tremors and subsultus are present, or when extreme restlessness, spasm, or
convulsion, arise from exhaustion, or in consequence of over-depletion, or long-pro-
tracted disease, it may be most beneficially combined with *tr. opii.* If convulsions
arise from opposite causes, or undue excitement, in plethoric habits, great mischief
might result from the mal-administration of stimulants. Great caution, then, is re-
quired in their exhibition, that the very effect is not produced which the object was
to counteract, as the diseases of children at first rarely arise from debility.
  " *Turpentine,* as a stimulant and anti-spasmodic, is well adapted for children, one
or two drops often quickly relieving flatulency and spasm. Although irritant to the
skin, it does not affect the sensibility of the mucous membranes ; on the contrary, in
cases of protracted diarrhœa, it is extremely beneficial, as also in intestinal irrita-
tion dependent upon worms. It may be taken in milk, or beaten up with the yolk
of an egg, or rubbed down with mucilage and honey."—P. 150.

Tonics.—Infants possess such active restorative powers as seldom, when
well supplied with food and exposed to the air, to require these. To older
children, however, tonics render valuable service during convalescence af-
ter protracted disease. The bitter vegetable infusions are usually well borne.
They should be made fresh, preparing them with a diminished proportion
of ingredients rather than diluting them, and an alkali and an aromatic
tincture form useful additions. *Decoction of Cinchona* is a powerful tonic,
which may be rendered more palatable by adding some *confect. amygd.* or
ext. of liquorice to it. Its strength may be increased by adding a little of

the extr. *cinchonæ*, or a few minims of the *liquor*.   *Iron* is the best tonic that can be given to children, being gradual, but persistent in its effects. The *vinum ferri* may be given even to the youngest children.   " In cases of scrofula, it requires to be persevered in for a considerable time, with occasional interruptions, or alternately with, or in combination with, iodine." The *ferri potassio tartras*, from its tastelessness, is also well adapted for children, being too less exciting and less constipating than other preparations.   It may be given with an aromatic in gr. v. ad xv. doses.   The *tinct. ferri sesquichlor.* " is a very useful compound, and conjoins the deobstruent property with the tonic.   It may be given during a state of vascular excitement, where other forms would not be admissible, and is beneficially administered in cases of glandular enlargement and tumid abdomen, and where there is loss of tone of the mucous membrane, or chronic diarrhœa."   The *ferri sesquioxydum* is mild and efficacious, but not so powerful an anthelmintic as the iron filings, causing, however, less flatus and fetid eructation.   " It is usefully combined with a small portion of the *bicarb. potass.*, and it may be made up with gingerbread cakes, and efficient doses conveniently given in that way."   *Iodine* is a very useful, stimulating tonic in cachectic states of the system, often resulting from mismanagement or neglect.   It is contra-indicated in an irritable or inflamed state of the digestive canal, and a highly sensitive state of the nervous system ; and must be very cautiously given where there is great emaciation.   It acts most beneficially when the bowels have been previously unloaded, and the biliary secretion promoted by a mercurial purge.   As a tonic, the best preparation is the compound solution, combined with bark or iron.   The *liquor potassii iodidi* and the *tr. ferri hydrochlor.* in some aromatic water, or the *syrupus ferri iodidi*, are other useful forms.   " Where there are any glandular enlargements, or a tumid state of the abdomen, the simultaneous local application of iodine is advisable : as ℥j. of the *tr. iodinii* co. to ℥ vij. of *lin. sapon.* co. ; or the *ung. iodin.* co.   These should be applied by moderate friction, night and morning, or the surface of the tumour or abdomen may be gently brushed over with the tincture every day, or every other day, according to the effect produced.   Where it is admissible, the previous abstraction of a moderate quantity of blood by leeches will greatly facilitate the action of the iodine."

We shall now transcribe some of Dr. Davies' remarks on the management of disease :

Erysipelas, Infantile.—" The disease prevails in seasons or states of the atmosphere when puerperal diseases are common.   The prognosis in lying-in hospitals is generally unfavourable ; but, in private dwellings, and less confined air, infants usually recover.   The treatment which we have found most beneficial is, to clear the bowels with 1 grain of calomel and 2 grains of rhubarb, followed by ℥j. of castor oil.   Cinchona is then to be liberally given, in combination with ammonia, in the following form :—℞. *Dec. Cinch.* ℥ ijss., *Extr.* Əj., *Ammon. Sesquicarb.* Əss., *Syr. Aur.* ℥ iv. *M.*   Dose, a teaspoonful every or every other hour. Linen, moistened with the following lotion, is to be applied frequently to the parts. ℞. *Dec. Papav.* ℥ viiss. *Tr. Opii* ℥ ss. *M.*   The infant is to be supported at the breast, and removed into a purer atmosphere, and, if very feeble, a teaspoonful of white-wine whey may be given occasionally.   When the mother and infant have been removed from the hospital, the infant has commonly done well.   We have now and then used the *nitr. argent.* as an application ; but we cannot speak

so favourably of it as in the erysipelas of adults, where we can bear the strongest testimony to its good effects."—P. 173.

Laryngismus Stridulus.—Dr. Davies states that, from considerable experience in the management of the disease, of which he published an account in the 13th volume of the *Medical Repository*, he considers it to be one of the most treacherous of maladies, and that the child is never safe until it is three years old, or has cut all its teeth—the greater number being first attacked between the 10th and 14th month. A long period may have passed since the paroxysm, and the child appear thriving and well, when any pleasurable or painful excitement may induce the spasm and carry it off suddenly. In most, if not in all, cases, it seems connected with painful dentition, although it may appear before the swollen state of the gums indicates the presence of this. In some families there is a constitutional tendency to the disease, and most of the subjects of it are of the strumous diathesis.

In *treating* the disease we should freely lance the gums over the next expected teeth, and attend carefully to the condition of the bowels. If there is much irritation or fretfulnèss, the *tinct. hyoscy.* with a saline will be found a valuable remedy. The pediluvium or general tepid bath has also a very tranquillising effect, the former being often more suitable as causing less disturbance. If the infant sleeps badly, and nothing contra-indicates its use, one grain of the *pulv. ipec. co.* forms an excellent narcotic. The breast-milk should be exclusively employed for the younger children, and a careful diet observed for the older ones. The head must be kept cool, the child freely exposed to the air, and preserved from all descriptions of excitement. " The fauces should be looked to, and if red or swollen, a solution of nitrate of silver (gr. viij. ad oz.), or, in less urgent cases, an acidulated syrup, as ℨj. or more of *acid. sulph. dil.* to ℨvij. *syr. papav.* should be freely applied twice a day by means of a hair-pencil. I have no hesitation in stating (in which I am borne out by the observation of others) that I have seen the most decided advantage from these applications, to which my attention was first called by the perusal of Dr. Ley's work." If general convulsions occur, four or six leeches to the occiput may be applied, and supervening cerebral affection, treated by appropriate measures. Enfeebled children require tonics, and, for such, the *vinum ferri* is the best, which, when there is much languor, may be combined with ammonia, or, in irritable habits, with conium or hyosciamus. The tincture of hop has been recommended as both tonic and sedative. Free exposure to fresh air is however the best tonic, and upon the subsidence of the most formidable symptoms, removal to the country should be strongly recommended. As a *prophylactic* the application of the acidulated syrup is useful.

Worms.—" We prefer, in children, the *Spt. Terebinthinœ* in ℨss. or ℨj. doses, in this form:—℞. Sp. Tereb., Mellis, Mucil. āā ℨ ʆ, Aq. ℥ p. ss. F. ht. One to be given every six hours. Every second day an efficient dose of calomel should be given with *P. Scamm. Co.*, or a dose of Castor-oil; or the *Sp. Tereb.* may be given in milk. We have never met with Tænia in children under eight years old, or known it to resist this treatment.

" For Ascarides—an enema of some strong bitter infusion, as wormwood or chamomile flowers, or *Semen Sautonici*, should be administered moderately warm,

slowly, and in sufficient bulk to distend the rectum, and through a large pipe. It is desirable that it should remain some time up: it is to be repeated twice a week, and, on the intermediate days, a brisk purgative may be given, and generally the administration of three or four enemas, with the intermediate aperients, will be sufficient.

"As debility of the organs of digestion, unclean bowels, deficient exercise, improper food and clothing, are the circumstances most favourable to the propagation and continuance of worms, it is in vain to give medicine, unless we endeavour, by appropriate means, to restore the general health.   Exercise should be taken in the open air.   The strength of the digestive organs should be increased by tonics, for which purpose the bitter vegetable infusions, in combination with soda, and some aromatic, may be given; the chalybeates, where they can be borne, are still better.   The abdomen should be rubbed with stimulating embrocations, and when it is large a roller or belt should be applied.   The food should be nutritious and somewhat stimulant, and taken in moderate quantities: all unripe fruit and *ill-dressed vegetables* should be avoided.   The child should be sent into the country."—P. 256.

Dr. Davies' observations upon *Hydrocephalus* extend to a length almost amounting to a treatise; but we do not observe that they throw any additional light upon this terrible disease, although they present a very good resumé of the most recent information we have upon the subject.   Dr. Davies lays great stress upon the early employment of blood-letting and free purging, and makes the following observation, which we scarcely think a judicious one.   "Were it more customary to let blood in these febrile diseases of children commencing with sickness and vomiting, and more especially where there is also a fulness of the hypochondria, one-half the cathartic medicines commonly given would be sufficient to restore the intestinal secretions: the crisis would take place at an earlier date, and fewer cases of hydrocephalus, subsequent to infantile remittent fever, would occur."   Our experience is little favourable to the employment of blood-letting in children, save in well-marked acute inflammatory disease, and we have no faith whatever in its preventive efficacy.   Of the *Hydrocephaloid Disease*, Dr. Davies observes :—

"Although exhausting discharges are for the most part the more frequent cause of hydrocephaloid affection, yet the disease sometimes takes place without any apparent cause of exhaustion, and alterations in the qualities of the blood, or in the nutrition of the brain, sometimes induce the same train of symptoms. Hence, defective nutrition of the body, and an imperfect supply of other vital stimuli, particularly air and light, may, by first inducing a state of irritation, eventually induce congestion, or the symptoms simulating hydrocephalus, and, in accordance with Dr. Bennet's statement, it is in the feeble children of the poor that hydrocephaloid affections are most commonly seen, except in those cases where it follows direct exhaustion."—P. 384.

Dr. Davies thus speaks of the employment of *Alum* in *Pertussis :*—

"After a long trial I am disposed to attach more importance to alum, as a remedy in hooping-cough, than to any other form of tonic or antispasmodic.   I have often been surprised at the speed with which it arrests the severe spasmodic fits of coughing; it seems equally applicable to all ages, and almost to all conditions of the patient.   I was formerly in the habit of taking much pains to select a certain period of the illness for its administration, and of waiting until the cough had existed at least three weeks, taking care that the bowels were open, the patient free from fever, the air-passages perfectly moist, and the disorder free

from complication of every kind. A continual observation of the remedy, however, has induced me to be less cautious, and I am disposed to think that a very large amount of collateral annoyances will subside under its use. The fittest state for its administration will be a moist condition of the air-passages, and freedom from cerebral congestion, but an opposite condition would not preclude its use should this state not have yielded to other remedies. It generally keeps the bowels in proper order, no aperient being required during its use. The dose for an infant is two grains three times daily; and, to older children, 4, 5, and up to 10 or 12 grains may be given, mixed with *syrup rhœad.* and water. It is seldom disliked."—P. 432.

Treatment of Porrigo.—When it occurs in the form of distinct patches, as is usually the case in the p. *scutalata* or p. *decalvans*, the best application is pyroligneous or strong acetic acid. In the first form, the part is to be only slightly touched by means of a piece of rag or sponge; but in the p. decalvans it is to be rubbed with the acid for a minute or two, "until it produces a sort of white vesication, and subsequent redness: it should not be touched again until the redness subsides." Some cases are cured by one application, and most by two or three; and if the acid is too frequently or too freely applied it induces a troublesome irritability on the surface. In the p. *favosa* the encrustations must be removed by soaking with soap and water and by poultices, and the hair clipped short but not shaved. The parts are then to be washed night and morning with an alkiline wash (*Carb. sod. vel Bicarb. pot.* 3 ij. *ad* ℔j. *Aq. tepid.*) and afterwards anointed with *pot. bicarb.* 3 ij., *Axung.* ℥ ij. M. When the alkaline wash loses its efficacy, a weak solution of chloride of lime or soda, or the following lotion, may be substituted. ℞. *Pot. sulphur.* 3 ij., *Saponis alb.* 3 iiss., *Liq. calcis* ℥ vij., *Sp. V. R.* 3 ij. M. After this, Dr. Davies has found the following ointment useful. ℞. *Ung. picis*, ℥ j., *Sulphur.* 3 ij., *Axung. p. p.* 3 vj., *Acid. sulphuric.* ℳ viij. M. The most careful attention must be paid to the washing and drying the head and removing the dead hair. The head should be kept uncovered within doors. Attention must, at the same time, be paid to the general health, these cases generally being connected with cachexia.

Dr. Davies has added considerably to the descriptions and remarks of former editions, and has thereby usefully filled up several of the lacunæ. which existed, and especially so with regard to diseases of the chest. Satisfactorily, however, as he has executed this, the most important portion of his task, we cannot compliment him upon the management of its more mechanical part. Many of his own contributions and those of the former editors, are distinguished by the usual appliances of initials and brackets, but many others are not so, or these are so improperly placed as to be useless. The notes of one writer are run into the text of another, without even the courtesy of a separate paragraph, and undistinguished observations by the editor are inserted amid the current descriptions of the author, so that it often becomes impossible, save by comparing the editions, to ascertain whose property they really are. Persons, strangers to former editions of this work, will doubtless frequently quote passages from it as expressing its author's sentiments which were never printed until long after his death. All portions, contributed by such various and able hands should have been carefully distinguished; for, without such care, the work is deprived of much of its weight and authority. We also think

the editor has not acted wisely in omitting several of Dr. Marshall Hall's observations to be found in the former edition.

M. Donne's little Treatise, as we have already stated, is an excellent one; and will, we understand, ere long appear in an English dress.

On the Pathology and Treatment of Scrofula; being the Fothergillian Prize Essay for 1846. By *Robert Mortimer Glover*, M.D., &c., Lecturer on Materia Medica in the Newcastle Medical School. 8vo. pp. 315, with 4 Plates. Churchill, London, 1846.

Within the last two years we have devoted so much space to the consideration of the very important subject of Scrofula, in reviewing the valuable works of Lugol, Dr. Tyler Smith, Messrs. Rilliet and Barthez, and lastly of Mr. Phillips,* that neither our readers, nor Dr. Glover himself, will expect that we should give an extended analysis of his work. Before proceeding to notice those parts of it which have chiefly attracted our attention, it is but fair to the author to state, that it was in the process of publication when Mr. Phillips' recent treatise was published.

Dr. G. divides his work into two parts, one devoted to the consideration of the pathology, the other to that of the treatment, of Scrofula. The former contains eight, the latter two, chapters.

Chapter I. is devoted to the " Description of Scrofulous and Tuberculous Matter." From this very expression, it will be at once perceived that our author regards these two forms of morbid deposit as essentially of the same nature; in opposition, therefore, to the opinion of Mr. Phillips on the subject, and in accordance with that which we expressed in our review of his work.

The tubercles of the lungs are not to be distinguished from those found in other tissues and organs of the body:

" We have," says Dr. Glover, after quoting the sentiments of Barthez and Rilliet, Valleix, and other writers to the same effect, " observed, in granular meningitis, the forms of grey granulation and yellow particles answering very well to the yellow points which appear in the grey granulation of the lungs. The milliary tubercle may exist in all the organs, and it is in the form of a grey infiltrated matter, granular to the microscope, more or less diffused through the substance of a gland that we detect the first appearance of mesenteric tubercle; afterwards we find a more crude or yellow appearance of tubercle matter, as in the lungs. The appearance of infiltrated grey matter is especially marked in effusions organised between the tunics of the intestinal canal. Some of the illustrations which are appended show the tubercular effusion in a mesenteric gland: 1stly, in a diffused form throughout the hypertrophied tissue of the organ; 2ndly, forming striæ and patches, varying in hue from grey to yellow; 3rdly, in cysts filled either

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* Vide the Numbers of the Medico-Chirurgical Review for January and October, 1845, and July, 1846.

with a tuberculous powder or with a curdy matter ; 4thly, in masses of lardaceous consistence implicating either the whole gland, or more or less of its structure. We have specimens of bronchial glands and bronchi sprinkled over, as it were, with a tuberculous powder, and studded with cretaceous fragments.

"High authorities, notwithstanding, have spoken of the grey granulation as a form of tubercle peculiar to the lungs, but we repeat as Barthez and Rilliet observe; 'it exists in all the organs, not only in the intestines, peritoneum, and pleura, but in the spleen, the liver, the kidneys, the lymphatic glands and the meninges.' "* P. 29.

He subsequently remarks :—

"It is exceedingly probable that the grey and gelatiniform infiltration of Laennec are merely early stages of the tubercular effusion. According to this author, the gelatiniform effusion similar to an œdema, formed of a viscous lymph, passes into grey infiltration, as it is probable that this latter, like the grey granulation, passes into the yellow tubercle."—P. 30.

In spite of the dissenting opinions of certain writers, we cannot but regard tuberculous deposit as essentially non-vascular in its structure, and altogether as an unorganised product or formation ; being destitute of true nucleated cells, and consisting chiefly of molecular, irregularly-shaped granules and corpuscles.

Is there any occasion for dwelling upon the Microscopic Characters of Tubercle ? We fear not; for, notwithstanding the many elaborate descriptions that have been published, it must be confessed, we fear, that but little satisfactory information has been obtained. In our review of Mr. Phillips' work, will be found an account of the examinations made by Messrs. Dalrymple and Gulliver, two good authorities upon the subject; and, in a preceding number of this Journal, the reader will find M. Lebert's description, which is generally received as one of the most accurate that has yet been published.

Dr. Glover has given extracts from the writings of Canstatt, Vogel, Scherer, and some other continental microscopists. For these we must refer the curious reader to his work. His concluding observations are as follows :—

"Under the microscope, undoubtedly, tubercular masses exhibit evidences of a deficiency of formative power, when compared with the organised deposits of ordinary inflammation on the one hand, and those of a parasitic character on the

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* According to our author's experience, tuberculous deposits are generally to be found between the investing membranes and the parenchymatous substance of the viscera. "In a specimen of tubercle of the heart, which we recently examined, all the tubercles were in contact with the endocardium or pericardium, although some of them had pushed completely through the muscular substance. In the tubercles of the spleen represented in the illustrations, the morbid formations are connected with the investing membranes of the organ. In all the specimens of tubercle of the kidney which we have seen, the deposit was connected either with the mucous membrane lining the ducts of the organ, or with the external covering. In the same way with the brain, we generally find the tubercles in contact with the external or internal membranes. And so with the bones, the tubercles are in relation with either the periosteum or the medullary ramifications. Not that we should deny the existence of these morbid formations in the parenchyma itself of an organ."—P. 231.

other. In these latter, the formative power is not sufficiently controlled by the laws of the general system, nor directed, as in ordinary inflammation, to a reparative function, but the new formed product takes on itself an independent vitality. In scrofulous and tubercular formations the formative power is deficient, and the cells which are formed, either remain abortive, or instead of cells, we find the granular corpuscles already described. The cells which many have found, belong most frequently, in our opinion, to original structures mixed up with the tubercle-masses: thus in fig. 4 there is a microscopic representation of lung tubercle, showing the remains of vascular and cellular tissue, mixed with the usual tubercular granules; the cells in fig. 7, from tubercle of the heart, are probably of the same character, and similar to those figured by Scherer, as already stated. We have not been able to discover any essential difference between the microscropic structure of infiltrated tubercle and that of the ordinary tubercle already described. The structure of infiltrated tubercle consists of irregular corpuscles and granules, some epithelial scales mixed with a few exudation corpuscles, and a great number of minute molecules."—P. 53.

If the Microscopic History of Tubercle has been hitherto so barren of available information, much more so, in this respect, is the Chemical, notwithstanding the labours of many eminent analysts. Those, who are interested in tracing the results obtained by successive experimenters, may be gratified with the details in our author's work. We shall content ourselves with giving one extract.

" The results of the chemical analysis of tubercle, and its after-products, of scrofulous bones, &c., although they may not as yet warrant very decisive conclusions, yet furnish some useful information, which will be found to bear upon the pathological propositions advanced concerning the essential nature of scrofulous and tubercular affections.

" Thus the large quantity of fat and extractive matters in tubercle, has a direct bearing upon the theory supported by many of the advocates of the use of cod-liver oil in the treatment of these diseases. The existence of pyin is important, and could we be sure of that of casein in quantity, we might to a certain extent explain the unorganisability of tubercle. But we have never been able to satisfy ourselves that the protein constituent of tubercle, as examined by us, approaches much nearer to casein, than to albumen. Nevertheless, the researches of Preuss, Boudet, Scherer, and others, must be held decisive of the existence, at least, in some cases of casein; although the last-named observer is far from confirming former writers in the statement of a large proportion of tubercle matter being composed of this substance. We have made other examinations for casein than those recorded, and have never been able to detect its presence. Whoever considers the very doubtful power of the tests which we possess, for distinguishing these different substances in the animal body, will be very doubtful of the precise nature of the protein basis of tubercle. Nevertheless, we may perhaps conclude that there is great probability of this protein compound having a certain approach to casein, or at least of a portion of it, exhibiting a tendency to take on the characters of this latter substance."—P. 88.

Chap. II. is entitled, " Humoral Pathology of Scrofula," and is occupied with the examination of the state of the Blood, Bile, Lymph, Chyle, and the Gastric and Urinary Secretions, in this disease. Dr. Glover seems to have bestowed considerable attention upon the hæmatological phenomena of Scrofula; but the results of his experiments have not added much—and indeed we could not expect it—to our information. All that we gather from them is, that there is " an increase in the solids of the serum, and a

diminution of the blood-globules, which is very nearly the alteration that has been long suspected to exist."*

There is sound truth in the following passage :

"Changes in the blood, more subtile than any which can be detected by our analyses, may play a most important part in the phenomena of disease: and as Bredow well remarks, 'if a peculiar condition of the scrofulous blood could not be proved by chemical or microscopical researches, still it would not necessarily follow that such a state does not exist, but only that the necessary re-agents were not known, and the microscopes employed not sufficiently powerful.'"†—P. 97.

Perhaps this will be the most suitable place to notice the opinion of our author as to the *Essential Nature*, or proximate cause, *of Scrofula*. The definition of the disease, which he proposes, is to this effect :—we should premise that the pathognomonic character of Inflammation is declared to be "the occurrence of effusion of blood-plasma with preceding congestion ;" whether these phenomena be accompanied with pain, heat, redness and swelling, or not.

"Scrofula is (speaking of the actual diseased process, not of the diathesis, which has been elsewhere described) a peculiar modification of inflammation, whereby the usual, or, as they may be termed, the normal products of this process are not evolved, but instead of them other materials, incapable of passing into the regular cell forms, and which constitute the substance already described under the name of scrofulous or tuberculous matter. The peculiarity of this formation, and the continuance of the scrofulous diathesis are the causes of the characters assumed by the various after-processes which result from the existence of tubercle."—P. 181.

He expands the same idea in the following passage :

"It is probable, that if the effusions in scrofulous and in ordinary inflammation were examined in their primitive state, no difference in anatomical character would be detected. The opinion maintained by Mr Addison, regarding the actual passage of corpuscles from the blood in the process of inflammatory exudation, seems not in accordance with analogy. The probability is in favour of such exudations being composed, in the beginning, of a plastic fluid, in which the different corpuscles characteristic of ordinary inflammatory organisation are afterwards developed. A scrofulous effusion, then, from some deficiency of organic power, of innate susceptibility, does not pass into the higher organised forms. We have, as a result, either a granular mass, destitute altogether of cell forms, or only abortive attempts at cell formation."—P. 185.

Does all this throw any light upon the real history of Scrofula? Dr. Glover seems to think that it bears upon the question as to the influence of hereditary predisposition to the disease: "If scrofula be merely a

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* Dr. Glover hazards a not very probable conjecture, in the following passage :

"We are strongly inclined to suppose that the original states of the blood in Scrofula, and in Gout, may present much similarity ; perhaps there may be more fibrin in the blood of gouty patients; and that from a deficiency in assimilative power in the former disease, the excess of albuminous matter is excreted from the blood in the form of tubercle, as already described; whereas in gout, the assimilation is more complete, and the excess of nutriment is manifested in the form of uric acid in the destructive digestion of the tissues; but this is, in great part, hypothetical."—P. 232.

† "Ueber die Scrofelsucht, s. 30."

modification of the inflammatory process arising from a peculiar cachexia, and exhibiting every stage of deviation from the usual standard, we perceive at once how exaggerated are the notions of the excessive power of the hereditary influence, entertained by Lugol."

We regret to observe that Dr. Glover has, with the view of discovering more as to the nature of tuberculous formations, deemed it either necessary or right to repeat Cruvelheir's experiments of trying artificially to induce the disease in animals.

"Among the arguments usually advanced in favour of the production of tubercles by inflammation is the formation of them by artificial means. We have produced them in this way in the rabbit and dog, chiefly in order to examine them by the microscope. The mode of experimenting adopted was by incising the trachea, and injecting a quantity of mercury downward into the lungs. The appearance of the bodies which resulted, the animal being killed at a period of from one to two months after the operation, was not externally unlike that of tubercle; little round whitish masses, more or less agglomerated ; and each nodule with a globule of mercury in its centre, around which the exuded matter was formed. Pus existed in some parts around the artificial tubercles; but on examining the broken up bodies by the microscope, although the structure of portions did not appear very different from that of the irregular granules and corpuscles of tubercle, yet the exudation corpuscles were tolerably numerous and those toward the edges of the exudation fully formed. Numerous nucleated cells also were found mixed with the mass; in short, the formation more nearly resembled an ordinary inflammatory product, such as we find in pulmonary hepatization."—P. 196.

So much for the instruction afforded from this (as it seems to us) unwarrantable source.

It is not necessary to do more than only allude to the opinions, or rather mere conjectures, that have been put forth by certain writers as to the changes of the Gastric Juice, Bile, and Chyle in Scrofula. Some have even gone so far as to hold that the immediate cause of the disease is a deficient secretion of the bile! We were a good deal surprised to find that so intelligent a man as our author should express even his qualified assent to such a fanciful doctrine :

"Although we cannot recognise a merely deficient secretion of the fatty principles of the bile as the cause of scrofula, it is not very improbable that these states of the liver and bile are closely connected with the pathology of the disease."—P. 120.

The only thing that calls for notice in the chapter *On the Tuberculous Diathesis*, is the very just remark of Dr. Glover on the controverted point whether fair or black-haired persons are most subject to scrofula :

"It might have been more satisfactory, if those who have made assertions on this head, as Dr. Alison in Edinburgh, Hufeland in Berlin, Lloyd in London, and Lugol in Paris, had informed us, first—what proportion persons of light complexion bear to those who are dark, in the inhabitants of these places, respectively; and second—whether the relation among people in general holds good in those affected with scrofula, or to what extent it is altered. This is clearly the only mode by which to arrive at a conclusion. If in Edinburgh and Berlin light hair and complexions are more common, and dark people predominate in Paris, it may well happen that the disease is more frequent in persons of one complexion in the two former places, and in those of a different complexion at the other, and yet the opinion of Mr. Lloyd may be correct."—P. 145.

In his description of the *Comparative Pathology of Scrofula*, in the following chapter, Dr. G. quotes chiefly from the elaborate work of Heusinger, reviewed in a recent number (for April last) of this Journal.   He might have also consulted with advantage many of the numbers of that clever periodical, the Veterinarian, which seems to have escaped his notice.

So much for the Pathology of Scrofula, the consideration of which occupies the *first* part of the present volume ; the *second* part is devoted to the subject of its Treatment.   Unfortunately authors have but little, that is valuable, to tell us upon this head, save in the way of repetition of what their predecessors have already said.   We may briefly notice one or two points, which may have the attraction of novelty at least for some of our readers.

As a curious specimen of very fanciful therapeutic speculation, we may point to Ascherson's and Klencke's theories of the action of Cod-liver Oil in scrofulous disease :

" He finds, that when albumen comes in contact with fluid fat, a coagulation takes place in the former, in consequence of which, a sacculated membrane or cell is formed, containing a molecule of the latter.   He thus considers that the use of cod-liver oil in scrofula, may consist in its power of enabling, mechanically, the excess of albumen in the blood to be worked up into blood globules. The action of cod-liver oil is, in all probability, as a tonic, from the resinous principle which it contains; by stimulating animal heat; occasionally by acting as an aperient, and also, as a deobstruent, more particularly by increasing the quantity of urine.   A more specific power is claimed for it by Klencke, who makes its usefulness to be owing to its supplying the deficiency of the fatty principles of the bile, which, according to him, are not excreted in sufficient quantity in scrofula, but remain in the organ, constituting the fatty liver so often found in this disease."*—P. 244.

The *modus operandi* of Iodine is thus attempted to be explained by Dr. Glover:

" When we consider the probable connexion of the secondary digestion of the tissues of which the principles of the urine are the chief results, with the state of the blood and the respiration, we may understand the important part which the use of a remedy like iodine may play in the treatment of such a disease as scrofula: 1st. In quickening the powers of absorption and getting rid of the effused albumen, (and tubercular is composed chiefly of albumen,) where this is not in such a form as to preclude all action of the kind; and 2nd, in removing the excess of albuminous substance in the blood.   Again, we deem it by no means an improbable supposition that the chief seats of the formation of urea, may be in the lymphatic glands of the general system.   This substance is not formed in the kidneys, as we know by the experiment of Prevost and Dumas.   Now, is it not very probable that the lymphatic glands may play such a part on fluids absorbed from the digestion of the tissues, as there is reason to attribute to those of the mesentery and others in the course of the chyle, upon this fluid ?"†—P. 257.

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* We read of the following highly philosophic and most instructive (!) experiment by one of these German theorists:—

" Klencke shaved two dogs, and subjected them to frictions of the oil; after three weeks of this treatment the animals were killed, and ' the bile contained as much fat, the chyle as many corpuscles with nuclei, the animal was in general in as good condition, as if he had taken the oil internally.' "—P. 274.

† " Dr. Prout attributes the urea of the urine to the transformation of the

Medical chemists come in for a gentle rebuke in the following passage; premising that our author has, with much show of reasoning, pointed out that there is a marked analogy between Chlorine, Iodine, and Bromine, and their respective salts, in their action upon the system.

" Since the first discovery of iodine in the mineral waters of Piedmont, by M. Cantu, and the almost constant detection of this substance, or bromine, in every mineral water containing a large quantity of chlorides, in which the research has been undertaken; a ludicrous degree of importance has been attached to the existence of minute quantities of bromine and iodine in waters known to be highly charged with the alkaline and earthy muriates; as if such difference existed between the activity of chlorides, bromides, and iodides, as that a proportion of 1⅛th of bromine, and ⅓th of iodine, to 189½ grains of chloride of sodium, alleged to be found by Mr. West in the Woodhall, (or Iodine!) spa, the water containing at the same time the chlorides of lime and magnesium, could be of such great consequence. But the greatest absurdity is the making bromine and iodine figure in the analyses uncombined, at all; as if these powerful electronegative elements could remain for a *single moment* in such waters in a free state. According to Mr. West's analysis of this very water, there exists in it a quantity of bicarbonate of soda! Now we believe that bromide of sodium might be used as a condiment instead of the chloride."—P. 271.

In taking leave of Dr. Glover, we feel much pleasure in expressing our opinion that his work reflects credit alike upon him as the author, and upon the Medical Society of London, in having selected it for the Fothergillian prize. It displays excellent scholarship, and an ardent zeal in the pursuit of professional knowledge.

I. ANIMAL CHEMISTRY, OR CHEMISTRY IN ITS APPLICATIONS TO PHYSIOLOGY AND PATHOLOGY. By Baron *Liebig.* Edited from the Author's Manuscript, by *W. Gregory,* M.D. F.R.S.E. Third Edition, revised and greatly enlarged. Part I. Octavo, pp. 256. Taylor & Walton, 1846.

II. EXPERIMENTAL RESEARCHES ON THE FOOD OF ANIMALS, AND THE FATTENING OF CATTLE : WITH REMARKS ON THE FOOD OF MAN. By *Robert Dundas Thomson,* M.D. 12mo. pp. 200. Longman, 1846.

THE publications of Baron Liebig have constituted an æra in chemical science. Long a laborious cultivator in this field of research, his investigations were little known, even to the professional public of this country,

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gelatinous tissues, and the uric acid to the metamorphosis of the albuminous constituents of the body; but this is manifestly erroneous, on account of the small proportion which uric acid bears to urea in the urine, while the albuminous tissues far exceed the gelatinous. It is also opposed to the views of Liebig, who considers urea to be the ultimate stage of the transformation, and itself arising from a change produced upon the uric acid."—P. 7.

until the Reports he produced at the instigation of that valuable institution, " the British Association for the Advancement of Science," disclosed him as a great practical philosopher and admirable genius. He is now the spoken-of of all men, even to the fathering upon him views and doctrines he never entertained. That his reputation is soundly based and will prove durable we can have no doubt ; for, although some of his views are by no means so original as his most ardent admirers would have us believe, (and here we cannot but protest against the non-acknowledgment of Dr. Prout's priority in respect to certain of these,) and some are very hypothetical ; yet, in the firm establishment of others of immense importance, in his expanded idea of chemical science, in his happy generalisations and lucid descriptions, in the light he has thrown upon various departments of physiology, and the remarkable impulse he has communicated to agricultural improvement and chemical investigation, Liebig has acquitted himself with a rare ability, and has conferred lasting benefit upon mankind.

The present part of the new edition of the " Animal Chemistry " is indeed an excellent indication of the claims of its author; containing, as it does, so many exemplifications of the correctness of the views already advanced by him, and so little in qualification of them. It is, in fact, so extended by the new matter illustrative of " the Chemical Process of Respiration and Nutrition," and by the addition of an entirely new section upon the method in which the investigation of the " Metamorphoses of Animal Tissues " should be pursued, that it may, as the Editor justly remarks, be almost considered as a new work. The general views of the author upon Respiration and Nutrition are too familiarly known to our readers to admit of our adverting to them in this notice, otherwise than by citing one or two of the additional illustrations which he brings forward ; and we shall chiefly confine our attention to the new section, which indeed occupies nearly a hundred pages of the present part. Our first extract shall be taken from an interesting sub-section upon the origin and uses of the Bile.

" The taking up of dissolved foreign matters into the blood,-or the absorption of such matters, is a chemico-mechanical act, which, as we have seen, extends to liquid substances of every kind, saline solutions, poisons, &c. It is now therefore obvious, that, by the forcible entrance of arterial blood into the capillary vessels, the fluids contained in these—in other words, the soluble compounds produced by the transformation of the organised tissues—must, as above stated, be compelled to move towards the heart. These compounds cannot be employed for the reproduction of those tissues from which they are derived. They pass through the absorbent and lymphatic vessels into the veins, where their accumulation would speedily put a stop to the nutritive process, were it not that this accumulation is prevented by two contrivances adapted expressly to this purpose.

" A part of the venous blood, before reaching the heart, is made to pass through the liver : a part of the arterial blood, on the other hand, passes through the kidneys, which separate from it all substances incapable of contributing to nutrition. Of the newly produced compounds, some are collected in the urinary bladder; another part is separated by the liver in the form of *Bile*. Physiologists cannot entertain any doubt as to the origin of the constituents of the Urine and of the Bile. Even when all food is withheld, the secretion of bile takes place : in the bodies of those who have been starved to death, the gall-bladder is found distended and full of bile.   *   *   *   *   *   *

" It is obvious that the constituents of the urine, as well as the chief con-
stituents of the bile, are products of the transformation of the blood and of the
organised tissues. The elements of urea, uric acid, and bile, were previously
constituent elements of the living tissues, which have lost the condition of life in
the vital process by the action of external causes. We know with certainty,
therefore, that some of the nitrogenized compounds, produced by the metamor-
phosis of organised tissues, after being separated from the arterial blood by
means of the kidneys, are expelled from the body as utterly incapable of farther
alteration.

" But another nitrogenized chief product, in which we find the sulphur of the
transformed tissues, and which is peculiarly rich in carbon, returns, as bile,
during the progress of digestion, into the system, in which it gradually disap-
pears, partially or entirely. If we compare the composition of the bile with the
nature and composition of the substances which are expelled through the intes-
tinal canal, it evidently appears, that the combustible elements of the bile, without
referring to the important part which that fluid plays in the process of digestion,
ultimately leave the body in the shape of oxydized compounds, and are perfectly
capable of being employed in respiration.

" The bile contains sulphur and is a compound of soda. The fæces of car-
nivorous animals, as of serpents and of dogs, fed with flesh and bones, contain
a very small proportion of organic excretions, which promote the passage through
the intestine of the substances not taken up during the digestive process. They
consist chiefly of bone earth, and, when incinerated, yield only traces of soluble
salts, among which, however, is not found carbonate of soda, which is left when
bile is incinerated. It is perfectly certain the soda of the bile has again entered
into the circulation. We find the soda and sulphur of the bile, the first in the
form of a salt of soda, the latter in the form of a sulphate in the urine.

" The peculiar property of the vessels of the intestinal canal, that of taking
up and carrying into the blood soluble substances of every kind, provided these
do not form an insoluble compound with the organic tissues of the vessels, is
well-known. A solution of common salt (1 part to 80 of water) administered as
an enema, disappears in the intestines just as pure water would do, without the
proportion of salt in the fæcal evacuation an hour after being in the smallest
degree increased. But the proportion of salt in the urine increases in a direct
proportion. In like manner, ferrocyanide of potassium, or iodide of potassium,
introduced in the same way into the rectum, very soon appears in the urine ; and
the disappearance of an enema of bile in the rectum, while the bile cannot be
detected in the urine, proves, not only the passage or return of the bile into the
blood, but also its employment in the respiratory process."—P. 73–77.

Employment of Alcohol in Respiration.—The alcohol of fermented liquors
plays the same part in the body of man as the non-nitrogenized constitu-
ents of his food ; for although its elements do not of themselves possess
at the temperature of the body the property of combining with oxygen,
yet brought into contact with other bodies during their eremacausis or ab-
sorption of oxygen, which are always present in the body, it acquires the
property in a higher degree than fat or other non-nitrogenized substance.

" When cod-liver oil is administered to persons accustomed to drink daily a
certain quantity of wine, it often happens, that the inclination for wine is dimin-
ished, so that at last they can take no wine at all : obviously, because alcohol and
fat oil in this case mutually impede the excretion of each other through the skin
and lungs, since the body does not assimilate the fat. This may also possibly be
the reason why most people find that they can take wine with animal food, but
not with farinaceous or amylaceous food."—P. 97.

Experiments prove that neither the urine nor the condensed fluid of expired air contain alcohol, whence it necessarily follows that its elements have been given out as oxydized products, its carbon as carbonic acid, and its hydrogen as water. When, however, the supply of oxygen is defective, the amount of the carbon of the alcohol being greater than that of the oxygen necessary for its conversion, " the alcohol must then pass off as such, or in the form of a lower stage of oxydation, as butyric or acetic acid ; or else it must be discoverable in the body." The agency of alcohol as a respiratory element of food is illustrated by the following anecdote :—

" In England, servants receive daily a certain amount of Beer, or in'the case of Total Abstinence, its equivalent in money. A friend informs me that in a certain household it was observed, that, from the day on which the servants ceased to receive beer from their master, the consumption of bread increased in a ratio corresponding to the diminution of beer; so that the beer was twice paid for, once in money, and the second time in the form of an equivalent of another kind of food, yielding the same amount of carbon and hydrogen."—P. 98.

There is an interesting section upon the derivation of the various vegetable acids and starch, gum, &c. from the carbonic acid of the plant, and their reconversion into this in the animal; but, as abridgment is impossible, we content ourselves with a single extract.

Respiration an indirect Combustion.—" In vegetables, sugar has thus been formed from Carbonic Acid, by the separation of Oxygen, and by the introduction of Hydrogen in its place. In the animal organism, the process is reversed; the hydrogen, in the animal body, is removed and replaced by Oxygen; and in this way the Carbon again assumes its original form of combination.

" This is, generally speaking, the essential character of the process of eremacausis or respiration; it is an indirect process of combustion, going on at a low temperature, and with a limited supply of Oxygen. We are not acquainted with any case in which, under these circumstances, the Carbon of an organic substance combines directly with Oxygen to produce carbonic acid. No combustion of the carbon, in the proper sense of the word, takes place, but the Hydrogen of the compound is oxydized and separated as Water, while its equivalent of oxygen is taken up in its place. Should one of the intermediate compounds, which are formed by the gradual replacement of the Hydrogen by Oxygen, possess, in itself, an attraction for Oxygen, then for 1 eq. Hydrogen more than 1 eq. Oxygen is taken up. The development of heat in the respiratory process, therefore, depends not on the direct oxydation of the Carbon but on the conversion of the Hydrogen of the organic compound into water, and on the substitution of one or more equivalents of Oxygen for this Hydrogen."—P. 110.

The Elements of Respiration as Sources of Heat.—The amount of heat produced in their oxydation varies much in these different constituents of food, being greater in proportion as they are rich in combustible or unoxydized Hydrogen—that being the substance during the combination of which with oxygen most heat is extricated. Estimating the heat produced during oxydation by the amount of oxygen required for converting different substances into carbonic acid and water, we find that 1 ℔ of Sugar of Milk combines with 187 volumes of oxygen ; the same quantity of Cane Sugar with 196 ; of Starch with 207 ; of Alcohol with 362 ; and of Fat with 511 volumes. If 1 part of Sugar of Milk can keep up the

normal temperature for 33 hours, the same quantity of Cane Sugar, Starch, Alcohol, and Fat, will maintain it for 35, 36, 65 and 87 hours respectively. " In order to keep the body at the same temperature during equal times, there are required, of Cane Sugar 100 parts, Grape Sugar 106, Starch 97·2, Alcohol 53·8, Fat 40·2, and Flesh 309·7. Pure flesh, therefore, possesses the smallest, and fat the greatest value as an Element of Respiration."

The Intestinal Canal an Organ of Secretion.

" It is hardly to be doubted that when nitrogenized substances are to be found in the fæces, and their presence has been demonstrated by all the analyses hitherto made, these substances can only be, either products of the change of matter in the intestinal canal itself, or products of the general change of matter, which have not undergone the normal changes, and which are separated from the blood in virtue of a power belonging to the intestinal canal, or to some portion of it. The apparent deficiency or absence of any structure in the canal, by means of which the secretory process is effected, is opposed to the opinion, that a true circulation, attended by a restoration of the disturbed equilibrium in the organism, goes on there : but the following considerations may perhaps serve as a support to that opinion.

" It is plain that the secretory effect of the canal, the amount of matters separated from the blood by its action, must stand in a definite ratio to the amount of oxygen taken up and consumed by the individual ; or, what comes to the same thing, to the amount and composition of the food. Every change in the relative proportion of blood-constituents and non-nitrogenized elements of respiration in the food, must exert an influence on the quantity and composition of the fæces.

" If we assume that the food contains a larger proportion of blood-constituents than is required for the supply of the waste of matter in the body, then the excess of these constituents must augment the mass of blood, or, if the animal possesses the necessary assimilative power, the mass of flesh in the body. If the amount of oxygen taken up be exactly sufficient to convert into oxydized products in a given time the products of the change of matter present in the system, as well as the elements of respiration contained in the food, then the fæces must possess the normal composition and character. But if the amount of sugar or of fat introduced in the food be greater than the oxygen supplied in an equal time can completely convert into carbonic acid and water, then, in an animal possessed of the necessary power, a part of the sugar will be converted into fat ; and this fat, along with the fat introduced in the food, will go to increase the quantity of fat in the body. If we now suppose the products of the change of matter and non-nitrogenized elements of respiration possess an equal attraction for the oxygen with which they combine in the organism, it is evident that the oxygen present must be divided between them. A certain portion will unite with the sugar, or with the elements of non-nitrogenized elements of respiration ; another portion will combine with the elements of the nitrogenized products resulting from the change of matter. When the supply of oxygen is deficient, or, what comes to the same thing, when there is an excess of non-nitrogenized and nitrogenized elements of respiration (the later being always viewed as the products of the change of matter), their normal conversion into oxydized compounds must necessarily appear impeded.

" Sugar, when oxygen is wanting, may pass into fat ; but only a part of the products of the change of matter can be, under these circumstances, converted into the normal oxydized compounds. While, in the normal state of nutrition, of waste and restoration, and of the supply of oxygen, the nitrogen of the effete

tissues takes the form of urea, and the sulphur of the bile that of sulphuric acid, which are discharged in the urine; when there is a deficiency of the oxygen necessary to the formation of these products, uric acid, a compound much richer in carbon than urea, will be formed, a part of the sulphur will appear in the urine as cystine (cystic oxyde), or in some other form; and the excess of the products of the change of matter which has not undergone these changes, must either remain in the blood, or it must, as we know of no other exit for it, be evacuated by the intestinal canal."—P. 144–146.

It will be probably more convenient to notice Dr. Thomson's interesting little work upon " The Food of Animals," before giving any further account of the one we are occupied with. It consists in the description of a series of well-contrived experiments upon the comparative value of various articles of diet in furnishing supplies of milk to cows, and is consequently of more immediate interest to the agriculturist than to the medical reader. Still, being the work of an accomplished chemist and physician, it contains several incidental observations of value to the practitioner, to some of which we will allude. Upon the whole, the book is an admirable exemplification of the great practical advantages derivable from pursuing the track of investigation so lucidly indicated by Liebig.

Influence of Variety of Food on Milk, and on Man.—Several series of experiments proved in a decided manner, that, upon a change of food, the amount of milk produced became increased, diminishing again after the same diet had been continued for some days.

" That a change of diet is necessary for animals which are kept in a confined condition, is proved by the tables previously given, in a striking manner, and the results now obtained amply sustain the idea supported by me some time ago in reference to the dietary of human beings shut up in poor-houses and places of confinement. It was then argued that ' in order to retain the human constitution in a healthy condition, variety of food should be properly attended to,' and different species of diet were suggested as well calculated to supply a series of dishes to the poor. In the Asylum for the Houseless, and in the House of Refuge at Glasgow, the recommendations were followed out; and, according to the report of the treasurer, ' the dinner meals being varied two or three times a week, the change in the dietary routine is much relished by the inmates, and may have had some effect in the greater degree of health which has been evident among them of late.' (*Proceedings of Phil. Soc. of Glasgow,* Vol. 1, p. 40.) The analogy subsisting between the physical nature of human beings and of many of our domestic animals would lead us to the conclusion, upon physiological grounds, that the dietary should be conducted upon precisely the same principles. To prove this by exact experiment is a point, it will be admitted, of considerable importance to the agriculturist, although it may have been, as might be expected, surmised by many intelligent observers. Not only, however, is a *variety* of food requisite for an animal in an artificial state, it is found also to be beneficial to one in a condition more akin to that of nature. For it is upon this principle we are able to account for the superior influence of old natural pastures, which consist of a variety of grasses and other plants, over those pastures which are formed of only one grass, in the production of fat cattle and good milk cows. To any one who considers with attention the experiments which have been detailed, there cannot remain a doubt in the mind that cattle, and especially milk cows, in a state of confinement, would be benefitted by a very frequent and entire change in their food. It might not be too much to say that a daily modification in the dietary of such animals would be a

sound scientific prescription.   In considering the case of the white cow, we find that a change from barley to barley and molasses increased the milk in three days from 21 lb. 6 oz. to 23 lb. 7 oz.; on changing from malt to barley it increased from 19 lb. 10 oz. to 20 lbs. 11 oz. on the first day: from barley to barley and linseed, it increased from 21 lb. 2 oz. to 23 lb. 12 oz. on the sixth day: from barley and linseed to beans, it increased on the first day from 21 lbs. 13 oz. to 23 lbs. 14 oz." —P. 147.

We consider the foregoing extract of high importance, in pointing to an omission entailing much needless suffering.   Many poor-law and prison dietaries are constructed with sufficient liberality as regards quantity, but in utter neglect of the no less important item variety.   The same unvaried routine is the doom of the unfortunate inmates, the severity of which may be judged of by the palling effect which the too frequent repetition of even the most excellent dishes exerts upon the palates of persons not condemned to the miseries of inaction.   Common humanity demands that this matter shall be looked into, especially as the rectification of the error involves no additional expense, inasmuch as Dr. Thomson suggests some cheap varieties, and others might be easily added.

Dr. Thomson suggests *Calorifiant* or *Heat-producing* as a more suitable term for designating the Elements of the food termed *Respiratory* by Liebig, and the following are some of his observations upon the proportion which these hold to the Nitrogenized or Nutritive Elements.

"Milk, the food of the infant mammalia, contains one part of nutritive to two parts of calorifiant constituents, and in the young state of an animal the nutritive part of the food not only supplies the place of the metamorphosed solids, but an additional amount of it is required to increase the bulk of the individual ; and, as we have already stated that animal heat is generated by the change or degradation of the fibrinous tissues, it is obvious that, in the nourishment of infant life, there is a supply of heat, from the casein, vastly superior to that afforded by fibrin supplied to the full-grown animals, because the amount taken in proportion to the quantity of calorifiant matter is much greater.   If we refer, again, to the food which is generally employed by the inhabitants of this country, wheat and barley, we find, by a mean of experiments afterwards to be detailed, that the average amount of albuminous matter present in them is 11 per cent., while the quantity of starch and sugar existing in those substances may vary from 70 to 80 per cent.: thus affording the proportion of nutritive to calorifiant food as 1 to 7 and upwards. Such food, it may be inferred, is fitted for the consumption of an animal which is not subjected to much exercise of the muscular system, and may be viewed as the limit of excess of the calorifiant, over the nutritive constituents of food.   As the demands upon the muscular part of the frame become more urgent, the proportion of the azotized constituents should be increased, and this may be extended until we arrive at the point where the fibrinous matter is equal to the half of the calorifiant, which is probably, in a perfect normal physiology, the greatest relative proportion of nutritive material admissible."—P. 165.

Dr. Thomson observes that, in order to vary the nature of the food according to the rest or activity of the animal, tables of its consumption are essential, and he presents a short one founded upon his own experiments.   From this, it appears that the relative proportions of nutritive to calorifiant matter in various articles of diet are as follows :—Milk 1 to 2 ; Beans 1 to $2\frac{1}{2}$; Oatmeal 1 to 5 ; Barley and Semolina 1 to 7 ; English Wheat Flour 1 to 8 ; Potatoes 1 to 9 ; Rice 1 to 10 ; Turnips 1 to 11 ; Arrow-root, Tapioca, and Sago 1 to 26 ; Starch 1 to 40.   From the ac-

companying remarks we select the following interesting ones on the *Food* of *Children* :

"Hence we learn that milk, in some form or other, is the true food of children, and that the use of arrow-root, or any members of the starch class, where the relation of the nutritive to the calorifiant matter is as 1 to 26, instead of being as 1 to 2, by an animal placed in the circumstances of a human infant, is opposed to the principles unfolded by the preceding table. In making this statement, I find that there are certain misapprehensions into which medical men are apt to be led at the first view of the subject. To render it clearer, let us recal to mind what the arrow-root class of diet consists of. Arrow-root and Tapioca are prepared by washing the roots of certain plants until all the matter soluble in water is removed. Now, as albumen is soluble in water, this form of nutritive matter must in a great measure be washed away; under this aspect we might view the original root, before it was subjected to the washing process, to approximate in its composition to that of flour. If the latter substance were washed by repeated additions of water, the nitrogenous or nutritive ingredients would be separated from the starchy or calorifiant elements, being partly soluble in water, and partly mechanically removed. Arrow-root, therefore, may be considered as flour deprived as much as possible of its nutritive matter. When we administer arrow-root to a child it is equivalent to washing all the nutritive matter out of bread, flour, or oatmeal, and supplying it with starch; or it is the same thing approximatively, as if we give it starch; and this is in fact what is done, when children are fed upon what is sold in the shops under the title of ' *Farinaceous Food*,' empirical preparations, of which no one can understand the composition without analysis. Of the bad effects produced in children by the use of these most exceptionable mixtures, I have had ample opportunities of forming an opinion, and I am inclined to infer that many of the irregularities of the bowels, the production of wind, &c. in children, are often attributable to the use of such unnatural species of food. It should be remembered that all starchy food deprived of nutritive matter is of artificial production, and scarcely, if ever, exists in nature in an isolated form. The administration of the arrow-root class is therefore only admissible when a sufficient amount of nutritive matter has previously been introduced into the digestive organs, or when it is inadvisable to supply nutrition to the system, as in cases of inflammatory action. In such cases, the animal heat must be kept up, and for this purpose calorifiant food alone is necessary. This treatment is equivalent to removing blood from the system, since the waste of the fibrinous tissues goes on, while an adequate reparation is not sustained by the introduction of nutritive food. A certain amount of muscular sustentation is still, however, effected by the arrow-root diet; since, according to the preceding tables, it contains about one-third as much nutritive matter as some wheat flours. The extensive use of *Oatmeal*, which is attended with such wholesome consequences among the children of all ranks in Scotland, is, however, an important fact, deserving serious consideration: and, it appears to me, is strongly corroborative of the principles which I have endeavoured to lay down in the preceding pages."—P. 169–171.

Dr. Thomson offers several useful observations upon the making of breads by the admixture of various flours, and is, we are glad to find, an advocate for the manufacture of this article independently of fermentation. If the experiments which have been recently so extensively undertaken prove successful, the boon conferred upon humanity will not be inconsiderable, when we consider the facility with which fresh-bread may be made on ship-board, and the emancipation of that numerous class of persons the journeymen bakers, from their destructive nocturnal toils. We believe the experience of most persons who have tried it is in favour of the

comparatively greater wholesomeness of unfermented bread, and Dr. Thomson, as the result of his investigations, finds its production more economical than is that of the fermented;—a sack of flour yielding 107 loaves of unfermented, and but 100 of fermented bread; 6¼ per cent. being lost by the ordinary process of baking. He furnishes the following formula for *making unfermented bread.*

"Take of Flour 4 pounds, Sesquicarbonate of Soda 320 grains, Hydrochloric Acid 6½ fluid-drachms, Common Salt 300 grains, Water 35 ozs. by measure. The Soda is first mixed with the Flour very intimately. The Salt is dissolved in the water, and added to the Acid. The whole is then rapidly mixed as in common baking. The bread may be either baked in tins or formed like cottage loaves, and should be kept from one to two hours in the oven. Should it prove yellow, it is a proof that the soda has been in excess, and indicates the propriety of adding a small additional portion of acid; the acid varying somewhat in strength.—P. 185.

We now proceed to the consideration of Baron Liebig's observations upon " The Mutual Relations of Chemistry and Physics to Physiology and Pathology," as contained in his new Chapter upon the mode in which the investigation of the Metamorphoses of Animal Tissues should be pursued. It is an excellent chapter, full of sound philosophy, and we are much pleased to find its author acknowledging himself so much indebted to that admirable work, " *Mill's System of Logic,*" during its composition. " Indeed, he feels that he can claim no other merit than that of having applied to some special cases, and carried out, further than had been previously done, those principles of research in natural science which have been laid down by that distinguished philosopher." Did works of this stamp more frequently form a portion of the preliminary studies and future references of the members of our profession, we should be spared many a crude theory and disjointed hypothesis, and should seldomer see them entangled in the mazes of sophistical reasoning and profitless speculation.

To proceed: Although in certain of the natural sciences the mutual relations of their phenomena have been observed with sufficient minuteness and accuracy to permit, by the special laws thus accumulated, the safe deduction of general laws, competent to the explanation of new phenomena and observations; such a point has not been reached as respects Physiology. To render it a deductive science, however, precisely the same procedures are requisite, and its progress is retarded by the same obstacles which have impeded that of other branches of science. Of these the difficulty of overcoming preconceived opinions by reason of some imperfection of information defying comprehension is the greatest; and thus many now well-established and easily understood facts of science positively defied at one time the comprehension of the most sagacious minds.

" We thus perceive that ' the comprehensible' has nothing whatever to do with the phenomenon. It depends upon the state of the development of the intellect. When, to the observer, the connecting link is wanting, which attaches a fact to the ordinary course of thought, then the fact, to his view, is destitute of truth or comprehensibility. This is one of the greatest obstacles which impedes the application of Chemistry to Physiology, or the simple study of chemical discoveries on the part of many physiologists. To this must be added, in Pathology, the holding for true of observations, the accuracy of which has no

other support than this, that they have been held as true for a thousand years. If, in these branches of knowledge, the methods of proof and investigation be not changed, there is no hope, with all her progress, Chemistry can ever be capable of yielding essential advantages to Physiology and Pathology ; and yet it is impossible that these branches can ever acquire a scientific foundation without the aid of Chemistry and Physic. Every one feels the necessity : it is only concerning the mode of application of these sciences that men are not agreed."—P. 162.

One great cause of the modern progress of Chemistry consists in the acknowledgment of a plurality of causes of its various conditions, in contradistinction to the essential properties of the older chemists ; but too many physiologists and pathologists of the present day comprehend under the terms Nervous Force, Vegetation, Irritation, &c., so many independent existences analogous to the essences of the phlogisticians. Thus the terms endosmose and exosmose are regarded not merely as expressive of one of the modes of filtration, but as denoting essential properties. Although it should be a primary object to distinguish the various conditions upon which the phenomena of vitality depend—and this principle is often applied in modern physiological investigations—yet M. Liebig, in a critical commentary upon the doctrine of Irritation, delivered by Professor Henle in his Pathology, shows that, even at the present time, very opposite conditions are often confounded together under some ill-defined or paraphrasistical term, false analogies and comparisons being also frequently resorted to. We have not space to follow him through this exposition, but may quote a short passage :

" A rude image of the organism, in many of its relations, may be found in the great sea-going steam-vessels. These consume, at each moment of their voyage, oxygen and fuel, which are given out in the form of carbonic acid, water, and soot, or smoke. In them exists a source of heat and a source of power which produces motion, or prepares the food of the crew ; and when a sail is torn, there is a man at hand to repair it ; a leak is stopped by the carpenter ; blacksmiths, and other hands, are active to preserve the ship in her original state, and in motion. So, also, in the living body there are smiths and carpenters at work, and the problem is, to acquire a knowledge of them, and of their mutual relations."—P. 177.

An exercised condition of the perceptive powers is an essential condition for accurate *observation ;* and no merely theoretical views in Chemistry or Physics will be received at the hands of one who has not given, by his prior practical investigations, assurance of his powers of correct appreciation. " It required a Berzelius, with his acute perceptive powers, to save from oblivion the notions of Richter concerning chemical proportions, to recognise their interior truth, and the existence of a universal law of combination under a mass of false facts, of which a single example—that of the carbonate of alumina, employed as the starting-point of the first table of equivalents, *which salt does not exist*—was sufficient to destroy all belief in the more accurate remaining facts." We cannot do better than quote the following excellent remarks upon *erroneous observation :*

" From the point of view of true natural philosophy every erroneous mode of contemplation and interpretation depends on the want of correct observations, and on the false notion entertained of the nature of an observation. It further depends on this, that we regard the constant association of two things, or the

constant occurrence simultaneously of two phenomena, as a necessary connection, and consider them as mutually determining one another. In nature, a number of phenomena appear together, one of which is not perceived when the other is wanting; but there are numberless others which occur together, without the remotest connexion. The supposition of a relation thus fallacious, or a false *nexus causalis*, proceeds in all cases from a false method of observation. So, also, the association of two phenomena, which are only analogous in one solitary relation, is always the result of imperfect observation.

" To see, to perceive, by means of our senses, is one condition of observing; but seeing and perception do not characterise true observation. The problem to be solved by the observer is, not merely to see the thing, but also the parts of which it consists. A good observer must notice, and seek to convince himself, in what connexion the facts stand to each other and to the whole."—P. 183.

Several examples of erroneous observation are adduced; but the one commented upon at greatest length is that furnished by the *parasitic theory of contagion*. In opposition to this, the author first states the facts favourable to the chemical theory of contagion, giving a luminous account of the origin and bearings of *ferments* and *putrefaction*. To the question of whether the state of transformation or putrefaction may be propagated to the living organism? he believes facts answer affirmatively. Among these are the effects of wounds received during dissection, and the symptoms induced by the ingestion of food in a state of decomposition, as German sausages, &c. The products of disease so induced are neither more nor less than portions of the constituents of the frame in a state of change in form or composition, and by means of such matters, so long as the state of decomposition continues, may the disease be propagated to others. Moreover, antiseptic substances powerful in checking putrefaction are those best adapted to destroy the communicability of contagions; while ammonia, the common product of putrefaction, is abundantly discharged from the system in typhus. Finally, the origin of epidemic and miasmatic disease, in localities wherein decomposition of organic matters is going on, is familiar to all observers:

" Hence, according to all the rules of scientific investigation, the conclusion is fully justified, that in all cases where a process of putrefaction precedes the occurrence of a disease, or where the disease can be propagated by solid, liquid, or aeriform products of disease, and where no nearer cause of this disease can be discovered, the substances in a state of decomposition or transformation must be regarded as being, in consequence of that state, the proximate causes of the disease. The condition which determines, in a second individual, his liability to the contagion, is the presence, in his body, of a substance which, by itself, or by means of the vital force acting in the organism, offers no resistance to the cause of change in form and composition operating on it. If this substance be a necessary constituent of the body, then the disease must be communicable to all persons; if it be an accidental constituent, then, only those persons will be attacked by the disease in whom it is present in the proper quantity, and of the proper composition. The course of the disease is the destruction and removal of this substance; it is the establishment of an equilibrium between the cause acting in the organism, which determines the normal performance of its functions, and a foreign power, by whose influence these functions are altered."—P. 206.

The author is quite at a loss to imagine how the *parasitic theory* of contagion can be preferred by any enquirer to the one above stated. It is based upon two facts, the propagation of scabies, and the occurrence of

the disease called muscardine in the silk-worm. That the contagion of *scabies* is an animal is obvious, and its communication by this means requires no theory to explain it; but when we come to enquire respecting all other contagious diseases, as small-pox, &c., we find the most careful observation has never detected any organised beings capable of propagating the contagion. A disease like scabies, therefore, which is caused by the development of a parasite in the body, must not be confounded with others in which such condition is absent; whatever resemblance other apparent phenomena may present. "The opinion that infection in contagious diseases is caused by living beings, and that scabies is to be regarded as the type of contagious diseases, has been chiefly founded on the principle that like effects imply like causes. This is the very principle which for centuries impeded the progress of natural science, and which, even in the present day, leads to so many errors."

Of the propagation of purely miasmatic disease nothing is known, and neither the chemical nor parasitic theory attempts their explanation; but the latter points to the muscardine as the type of the contagious miasmatic diseases which are induced by matters derived from the air as well as those derived from the system. The muscardine is a disease of the silk-worm caterpillar induced by a fungus, which grows at the expense of the body of the insect, and just as various other parasites of the vegetable and animal world, induces the death of the animal it infests; but there is no connexion between this and the origin of contagious miasmatic disease.

The parasitic theory has been based upon a fallacious explanation of fermentation and putrefaction, according to which these processes are caused by the presence of Infusoria and Fungi, a breeding-place for which is thus formed in every putrefying organic substance. The germs of these beings fill the atmosphere and become the causes of disease. The connexion existing between putrefaction and contagion is here acknowledged, though faultily explained. In fact, fungi and infusoria are, upon the extinction of the vital principle, subjected to the same reduction from more to less complex combinations as are all other varieties of organised matter, during putrefaction. It is true that fungi and infusoria are abundantly found in fermenting and putrefying bodies; but they are the accompaniments, not the causes, of these states. Generally they only appear when putrefaction has already begun, or is completed, and the process of decay commenced, dependent as they are for subsistence upon the organic atoms which have been set free by these processes. These bodies, indeed, by assisting in the resolution of the products of the organism into carbonic acid and carbonate of ammonia, the object of the putrefactive process, remarkably accelerate its progress, and are in fact antagonists to its continuance, and the enemies and destroyers of contagion and miasms. Indeed, during the active condition of the green and red infusoria they become sources of the purest oxygen gas.

We regret that our limits will not permit our following the author through his exposure of other fallacies, and his observations upon the dependence which exists between the physical properties of the elements and those of the organic compounds. After adducing numerous examples of such mutual dependence in purely chemical compounds, he proceeds:

"It is their method of investigation which has led many physiologists and pathologists to regard the vital properties in some measure as exceptions to a

great law of Nature. How else can it be explained that they do not consider the number and grouping of the elements of which the organic tissues are composed, as a physiological property, which must serve as an altogether indispensable means of acquiring a knowledge of vital phenomena ? How can it be explained that they do not take into account, in curing and removing diseased conditions, the elementary compositions of their remedies, and the properties thereon depending, by which their effects are produced ? A mere knowledge of formula is evidently not sufficient, but it is absolutely necessary to discover the laws which regulate the relations of the composition and form of the food or of the secreta to the nutritive process, and of the composition of remedies to the effects which they produce on the organism."—P. 248.

The present advanced state of physiology would have been impossible without that complete knowledge of structure which anatomy imparts ; but anatomy alone is not sufficient to ensure future progress. If it were, chemistry could lend no helping hand, inasmuch as its office is not " to discover the form, but to determine the relation between the form and the elements, with their arrangement, by which that form is produced."

"If anatomical knowledge is to serve for the resolution of a physiological question, then, of necessity, something more must be called in, and the most obvious is the matter of which the organised form consists, the forces and properties which belong to it, in addition to the vital properties, and a knowledge of the origin of this matter, and of the changes which it undergoes in order to acquire vital properties. Finally, it is indispensable to know the relations in which all the constituents of the organism, the fluid as well as the solid, altogether independently of the form, stand to each other. To many physiologists, chemistry alone appears to have been enriched by all which chemistry has discovered, with reference to these highly important questions, although in chemistry, all these results occupy a rank quite as subordinate as that attained by the analyses of minerals and of mineral waters.

"Another fundamental error, committed by other physiologists, is this, that they suppose the chemical and physical forces alone, or in combination with anatomy, sufficient to explain the phenomena of vitality. It is indeed difficult to understand, how the chemist, intimately acquainted with chemical forces, recognises in the living body the existence of new laws, of new causes, while the physiologist, little or not at all familiar with the knowledge of the action and nature of chemical and physical forces, is ready to explain the same processes, with the aid of the laws of inorganic nature alone.

"The last-mentioned view is, in reality, the extreme consequence of a re-action against a previous one. In the age, not yet long past, of metaphysical physiology, every thing was explained by the vital force. The re-action rejects the vital force, and believes in the possibility of reducing all vital processes to physical and chemical causes. 'In the living body prevail,' thus men spoke forty years ago, 'other laws than those of inorganic nature.' Many physiologists of the present day, on the other hand, regard them as of the same kind. That which, in both views, is profitless for us, is that, neither formerly nor at this time, have men endeavoured to determine or discover the differences in the effects of the vital force, and those of the inorganic forces, and their likeness or unlikeness. The conclusions arrived at were not founded on a knowledge of the likeness or unlikeness of their mutual relations, but on ignorance of these things.

" The same physiologists, who regard the vital processes as the effects of inorganic forces alone, forgot entirely, that by the expression 'chemical forces' is meant nothing else than the *quantitative* in the different vital phenomena, and the *qualities* determined by these quantities. From the false notion which has been formed of the influence of chemistry on the explanation of the vital phenomena, it has happened that, on the one hand, this influence has been estimated too low, and that, on the other, the expectations and demands on it have been raised too high."—P. 252.

PRACTICAL   OBSERVATIONS   AND   SUGGESTIONS   IN   MEDICINE.
Second Series.   By *Marshall Hall*, M.D. F.R.S.L. & E., Foreign
Associate of the Royal Academy of Medicine of Paris, &c. &c.
Small 8vo., pp. 360.   Churchill: London, 1846.

AT the close of our notice of the First Series of these Observations, &c.,
in the number of this Journal for April, 1845, we expressed a hope that
Dr. Hall would revise and more carefully prepare any subsequent series,
so as to render it more worthy of his acknowledged reputation.   The
review, which we propose to take of the present volume, will enable our
readers to form their own judgment pretty fairly whether Dr. H. has
acted upon this friendly suggestion or not.

The Preface is amusing in its way.   " The hydra, quackery, now so
prevalent both in and out of the profession," comes in for two or three
stout blows from our ever-vigilant author.   All sound practical medicine,
it is more than once declared, must be based on an accurate knowledge of
experimental and clinical physiology.   " The biblio-physiology of the day
can issue in no good whatever.   The medical mind wants discipline ; we
should study the works of Harvey and M. Louis ; experiment, and obser-
vation, and philosophy should go hand-in-hand."   A physiologist could
not, if he would, either be a quack or disposed to quackery.   So, at least,
says Dr. Hall : we hope it may be so.   " There is nothing in Mesmerism,
Hydropathy, Homœopathy, that could lay hold of his tutored, chastened,
philosophic mind.   To the hideous folly of Mesmerism, and the disguised
nothingness of Homœopathy, he would feel an ineffable disgust ; of Hy-
dropathy he would think as of any other system of gambling—with the
addition that, in this case, safety, health, and life are the stakes."—P. vi.

Let us not forget that too much may be made even of Physiology, as of
other less important introductory and auxiliary sciences, by him whose
grand end and aim ought to be the alleviation of suffering and the cure of
disease.   It is possible that so much attention may be paid by the builder
to the groundwork, that the superstructure—the real building—is all but
neglected ; and that the farmer may be so much occupied in experimenting
with new manures and so-forth, that he forgets in the autumn to com-
pare his crops with those of his less curious neighbour.

Dr. Hall, with the most laudable desire to find occupation for others,
suggests a number of subjects or themes for future investigation.   Most
of them are, as might be expected, more ingenious than very practicable ;
or, when practicable, very practical.   For instance, " the influence and
agency of mind, nerve, blood and muscle, respectively, in the animal eco-
nomy ;" " the reciprocity between the ingesta and egesta in the animal and
vegetable kingdoms," &c. &c. ;—are no easy topics, we should think.   " I
had once the idea," says he, " of making a special study of the physiology
of death, &c., so as to give evidence in trials involving the questions of
suicide, homicide, &c., my object being to succour the innocent, and not
to spare the guilty.   I would *suggest* and recommend this project to some
young and generous-hearted physician, as not unworthy of a life of special

devotion and research.   But I fear there is little *poetry* in our profession, and that 'the age of chivalry is gone.'"   Who the true knight-errants are, we must leave the readers to guess.

After the Preface, come the Introductory Observations.   We are again favoured with some remarks upon the empiricism that is so rampant, under different forms, in the present day.   There is unfortunately but too much truth in the sarcastic remark, that " there is no folly too foolish for some of those, who are the *judges* of our qualifications for the practice of our profession."

Now what is the real remedy against quackery ?   KNOWLEDGE (the capitals are not our's), replies our author : " knowledge amongst ourselves; knowledge of the actions and functions of the animal machine.   *Its* influence will *soon* (?) be felt by the public."   Something more than this sort of knowledge is wanted, we suspect.   If there was more honest, upright principle abroad, more love of simple truth and of single-minded philanthropy, and less lust of money and of popular applause, more regard, in short, to those duties which M. Simon has with so much feeling and eloquence enforced in his " *Deontologie Medicale,*" the very fountain-source of quackery would be dried up.   It is the heart, more than the head, that is generally at fault.   Physiology can't put things right, in spite of all that Dr. Hall says in its praise : nay, there may be empiricism and charlatanerie in it as well as in other departments of science ; witness the doings of more than one of the French school in the present day.   Our author's mind is much more of a physiological or ætiological, than of a practical, cast.   What the Germans call "naturforschung," appears to be the grand aim and end of his existence.   His every thought seems to be taken up with striving to discover the *why* and the *wherefore* of vital actions.   Truly his motto should be—

Felix qui potuit rerum cognoscere causas.

He tells us, in one passage, that " there is still ample scope for a useful treatise on the physiology of death and of dying.   The great HUNTER has treated briefly of 'dissolution.'   It would be interesting, and perhaps practically useful, to trace the *modes* in which each fatal disease of each organ destroys life."   His restless inquisitive glance is thus peering about everywhere, and gathering food for the exercise of his ever-active mind.   He makes discoveries, where other people only see simple recognised facts. For instance, every practical physician has been long well aware that the existence of dysphagia or dyspnœa, in cases of Hemiplegia, is always a most unfavourable omen.   Dr. Hall is able to tell us the *why :*—the Spinal, as well as the Cerebral, system is involved.   That this very love, however, of seeking to explain everything he meets with, sometimes leads him to take things supposed for things demonstrated, must strike every reader of his works :—it is an almost inevitable consequence of his mental physiognomy.   Thus, he lays it down as proved, that the muscular tissue of the intestine *is paralysed* in inflammation of their peritoneal coat; and then he goes on to say—" ought we to give purgative medicines, when the tissue, which they excite into contraction, is incapable of its function ?" We admit the soundness of the practical precept, but not of the physiological interpretation.

There is certainly an ingenious subtlety in all his reflections; but it is often difficult to perceive their pertinence or value at the bed-side of the sick. The tenesmus and strangury in cases of Dysentery and Inflammation of the neck of the Bladder are declared to be ' reflex actions.' But what of that ? Does such knowledge enable us the better to relieve those symptoms ? Again; we are told that " the physiology of the nervous system is the very key to the act of parturition, and the very foundation of the Obstetric Art." What say Drs. Locock and Ramsbotham to this declaration ? And then, with respect to the next assertion—that " in medical jurisprudence, physiology is everything"—we must leave it to Dr. Christison and other zealous labourers in that department of science to decide upon its truth. We, in our ignorance, had fancied that Chemistry had a good deal to do with the business.

Chap. III. consists of a mere scrap from a lecture on the subject of the *vis nervosa;* it contains nothing that need detain us. In the closing paragraph, " a knowledge of the true spinal system is" declared to be " to diseases of the Nervous system, in some degree, what the stethoscope is to diseases of the Thorax." This comparison, (which, by-the-bye, is repeated two or three times,) we fear, will hardly hold. Equally inapplicable is the reflection that, " what the heart is to the circulation of the blood, the spinal marrow is to the functions of the nervous system, the very source and centre of its operations." What then becomes of the cerebrum and its functions ?

We are next presented with " A Succinct View of the Nervous System;" such as every reader of our author's writings must have met with a dozen of times. How edifying is the closing sentence:—

" I will conclude by the detail of an easy experiment, which any one may perform on a common frog :
  1. Remove the brain ;
  2. Remove all the viscera.
the first operation removes the centre of the cerebral system; the second, almost every branch of the ganglionic.

" 3. What then *remains?*   *The spinal* MARROW; the true spinal *marrow*, hitherto undistinguished from the spinal *chord* of cerebral nerves, and the spinal *connections* of the ganglionic system."—P. 21.

We have then a chapter on the " Influence of Emotion on the Health and in inducing and modifying Diseases." Chap. VII., on the same subject, may be briefly noticed along with it.

Dr. Hall is of opinion that the *seat* of the passions, and likewise of the sense of pain,* is in the *medulla oblongata ;* for these powers or faculties remain when the *cerebrum* is reduced to its minimum. " The arm, when perfectly paralysed to volition in Hemiplegia, is agitated by emotion; and emotion exerts its influence on the heart, the intestinal tube, the secretions, &c."

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* In a subsequent passage, it is said that pain " has its further seat, in many of the cases which come before the physician, in the *ganglionic* system. If this view of the subject be just, it follows that the trifacial nerve, so subject to be the seat of pain, contains ganglionic filaments, of which, indeed, from other considerations, there is little doubt."

The following extract, on the Location of the different **Mental Faculties** or endowments in the encephalic mass, gives a connected view of our author's opinions on a dark and difficult theme, and affords a good sample of his inquisitive character.

" The Intellect seems to be seated in the upper part of the cerebrum. In proportion as the development of this is defective, the being is unintellectual ; he is an *idiot.*

" Its more manifest phenomena are connected with a certain set of nerves which may be termed Cerebral, and which are employed in conveying Sensations towards the central intellectual organ, and Volition from that organ.

" The Emotions are, I believe, seated lower down.   The idiot, though deficient in intellect, is frequently swayed with the most violent emotions, and especially by the most extreme Fear, and the most violent Anger.

" The emotions display themselves principally, I believe, along that part of the nervous system which I have denominated the *true spinal,* or excito-motor.

" The Desires and the Passions are seated lower still.   The idiot, who is so deprived of intellect as not to approach articles of food set before him even, swallows portions of that food placed within the mouth, with the most extreme avidity and voracity.

" The Instincts appear to me to be complicated in a high degree; and to combine—1, an act of volition ; 2, the display of desire and passion ; and 3, an act, probably unintellectual, and of an excito-motor character.

" The lark ascends the atmosphere by an act of volition, with the lively expression of a sexual passion, and probably keeps on the wing by an excito-motor act.

" What the lark does for its mate, the swallow does in search of food. It undertakes a long flight or aërial journey, urged by desire, guided by its intellect, sustained by the excito-motor principle—which is not subject to fatigue,—with the express object of the search of food.

" In the same manner, the bee provides its honey, and forms its honeycomb ; this act combining mysteriously the influence of volition and of passion, whilst the actual deposit of its wax, and of its honey, may be effected, like those of deglutition and of inspiration—certainly not less wonderful or inscrutable,—by an excito-motor power impressed by the Creator for this purpose, as in other acts apparently of design.

" Thus also the beaver builds its hut, and the bird its nest,—impelled by passion, guided by volition, and aided, probably, by the excito-motor power.'"—P. 32.

It is quite unnecessary to adduce any examples of the Influence of the Feelings on the Body in health and disease ; as we treated of this interesting subject at considerable length in a recent number of this Journal.*

We have heard, within the last year or two, of Reflex Cerebral, as well as of Reflex Spinal, Actions.   Dr. Hall does not admit the propriety of the language :

" There is an interesting fact which I cannot pass over ; a disgusting object frequently acts on the spinal and ganglionic systems so as to induce sickness and faintness.   This has been called a reflex cerebral action.   It is mere emotion." —P. 43.

Does one interpretation or mode of speech explain the matter better than the other ?—we cannot tell.

The remarks on " Sleep," in Chap. VI., are not likely, we should think, to win the assent of many.   Our author, ever anxious to find a reason for

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* Vide Medico-Chirurgical Review for October 1845.

everything, suggests the following most singular explanation of the cause of this condition :

"I am of opinion, and I shall have to repeat the observation, that a state of contraction of certain muscles of the neck takes place, analogous to that of the orbicularis palpebræ, as sleep comes on ; that certain veins are compressed ; that congestion of the brain takes place ; and, lastly, as a consequence of this last, *sleep*."—P. 26.

A few pages further on, we read :—

"Sleep, then, seems to be induced by any event which first gently excites and then gently lulls the attention. The influence of volition is removed. The levator palpebræ, a purely voluntary muscle (?), is consequently paralysed ; and the orbicularis—a muscle purely of excito-motor action (?)—is allowed its uncontrolled play ; and the eye-lids close.

"Does anything of this kind take place elsewhere ? I have sometimes imagined that it does, and that it is *the* event which induces sleep. Certain muscles may be muscles principally of excito-motor action ; and when volition is withdrawn from the other muscles of the neck, *they* may contract like the orbicularis, and gently compress the jugular veins, and so induce congestion of the brain, and sleep,—and, as we so often observe, attacks of apoplexy and of epilepsy. But I repeat that it is a mere conjecture—to be accepted for what it is worth, and a mere foil, if unfounded, to excite others to efforts more fortunate."—P. 35.

That Sleep should be owing to congestion of the brain ; that it should be " allied to Epilepsy ;" that it should be apt to induce an attack of this disease, " by allowing the excito-motor power to act uncontrolled by volition ;" and that "sleep and emotion induce similar *results*, acting on different principles," are so many positions which we gladly leave to our readers to discuss at their leisure, before inviting slumber to their eyes.

Chapters VIII. and IX. will not detain us. The first of these treats briefly of " Galvanism as a test of the Irritability of the Muscular Fibre." The second contains a few cursory remarks on those Paralytic Affections —often associated with spasmodic contractions in other parts—which occasionally occur during dentition.

"Are these effects the immediate effects of teething on the dental nerves ? or are they induced through the medium of some morbid condition of the spinal marrow ?

"This is a question which, I think, has never been investigated in the only way in which an accurate result can be obtained—by careful post-mortem examination. It is therefore all conjecture."—P. 49.

We alluded, in our review of Dr. Hall's first volume, to his extravagant laudation of his own mode of scarifying the gums. He rebukes the whole profession for their want of faith in his advice :—

".To relieve the state of the alveolæ to which I have adverted, we must scarify the gums immediately contiguous to them ; we must divide the very blood-vessels which feed them !—frequently—daily, or two or three times a day. But to this simple proposition objections still are made. Alas for our profession !"—P. 50.

Chapter XI. is headed thus :—" The Dura Mater excitor ; Diagnosis of Diseases of the Brain." It consists of a double report, one by Dr. Hall and the other by Mr. Smith, of an experiment which these *gentle*men performed on a dog, with the view of ascertaining, we are informed, " whether the Dura Mater, being supplied by a nerve usually excitor (the trifacial), is in itself excitor." We shall give our author's own account of

this most humane and enlightened procedure ; only adding that the poor tortured animal continued to breathe, until the medulla oblongata and upper part of the spinal marrow were removed !

" We removed a portion of the cranium of a spaniel dog, just over the *left* hemisphere of the cerebrum.

" We made pressure—gradually augmented : the dog became quiet, appeared to sleep ; the eye-lids closed ; the breathing became audible, stertorous, slow, sighing, the pupils contracted ; at length, spasmodic twitchings were observed, and, afterwards, continued spasms : the eyes rocked, the tail was drawn, and then all the limbs were agitated and became stiffened.

" We removed the pressure, but the brain had been torn ; the spasms ceased, the breathing became natural, the eye-lids opened, but the pupils remained contracted. The dog was *hemiplegic*, supporting his *right* side against the wall. We repeated this ; the result was the same.

" We irritated the *nostril* and induced *sighing*, sometimes followed by sneezing, sometimes not. We irritated the meatus auditorius externus, and the head and limbs were much agitated. Sensibility was not entirely removed.

" We removed the cerebrum entirely : the pupils became permanently *dilated.* On irritating the motor oculi, the eye-lids were a little drawn by the corrugator supercilii, and closed and drawn towards the outer angle of the eye ; but there was no action of the *levator*. The eyes rocked.

" On irritating the *dura mater* in various parts, these and other movements were also induced.

" On drawing the cerebellum forwards, convulsive movements were induced ; but neither laceration of the cerebrum nor cerebellum seemed to induce muscular contraction.

" When the animal appeared *blind*, approaching the candle induced closure of the eye-lids ; as did always touching the eye-lashes.

" The flow of saliva was constant, and in large quantities."—P. 66.

Now this experiment, we are informed, has important bearings upon practical medicine. Let us see what these are. It illustrates, we are told, the effect of Irritation of the Dura Mater, and shows that a certain degree of pressure on the brain induces mere apoplexy, while a higher degree of that pressure induces convulsions and spasmodic affections. So valuable is the instruction derived from the experiment, that reference is made to it in no fewer than three of the subsequent chapters. In one of these, after favoring his readers with a mutilated report of a case of Puerperal Convulsions, the phenomena of which are said to have been precisely similar to those manifested by the poor mangled animal, Dr. Hall informs them (no one, certainly, could have discovered it for himself) that they must now " perceive the advantage of Experimental Physiology in its relation to Clinical medicine." ! !

If such be the basis on which science is to be built, and such be the means to promote its advancement ; if this be the sort of physiology that is set forth as " the only foundation for practical medicine," and this the KNOWLEDGE that is proclaimed as the sure corrective of quackery and the true exalter of our profession—it were better, we think, that science should be buried in the oblivion of Alchemy and Astrology, or be doomed to execration with that truculent Theology, which has impiously taught man to take the sword of persecution into his hand, and to pervert the glad tidings of mercy to mankind into the wild tocsin of cruelty and death, than that this revolting exhibition of animal pain and suffering should be, from

year to year continued in our schools.   And what, pray ! are the real benefits that even the perpetrators of these atrocities must acknowledge themselves to have been thereby conferred on the art of healing ? for we suppose that there is scarcely any one who will justify them upon any other ground.   Have we learned to treat any of the diseases of the nervous system more successfully, after all the horrible butcheries that have been committed within the course of the last five-and-thirty years, than did the wise and able men of last century, the Boerhaaves, the Cullens, or the Heberdens ?   Was Sydenham, may we ask, educated in the school of blood and torture ?   Was Mead a vivisector ?   Did Jenner's great thought originate in mutilating experiments upon animals ?   Did Pinel learn his lessons on philanthropic usefulness from witnessing the writhings of tortured life ?   Was Baillie's consummate skill in diagnosis derived from the dissection of living brutes ?—or was Laennec's grand discovery the offspring of such a deed ?   Did Abercrombie offer up hecatombs of dogs and rabbits on the altar of science (!), ere he wrote his admirable work upon disease of the Brain ?   Has Andral ever been a fellow-labourer with Magendie or Longet ? or has Louis himself—the beau-ideal of a physician in our author's opinion—reaped his laurels from that "knowledge of the state of the living morbid actions which," Dr. Hall declares, "must guide us in practice ;" and not rather from that very pursuit which is somewhat slightingly called by him " crude and *post-mortem* morbid anatomy?"

We regret to say that the experiment, which has called forth these remarks, is far from being the only one related, or alluded to, in these " Practical Observations and Suggestions."   At page 57, we read thus :—

"It is possible, by a peculiar mode of proceeding, to destroy or remove the spinal marrow, leaving the circulation of the blood subsistent.   In this case, if the stomach, or intestine, or one of the limbs, be crushed, it seems to arrest the circulation entirely and at once ; the injury, acting, of course, through the medium of the ganglionic system only.   Dr. Stilling has recently stated that, when the spinal marrow is entirely absent, no such effect is produced.   He has not, I believe, deduced any inference from this experiment.   The obvious inference would be, that the intra-spinal structure, and not the ganglia, is the centre also of reflected influence on the heart, and probably on all the internal organs.   But the experiments require careful repetition."—P. 58.

Is not the scientific *sang-froid* of the last sentence most edifying ?

Chap. XIV. treats of " The Nature of Inflammation."   One or two passages call for notice.   The following description of the Capillaries is surely remarkable rather for its novelty than for its truth :—

"These vessels have no distinct course,—no distinct successive unions, nor successive divisions,—no character of artery or vein, or of a tube of any kind.   They pursue their course irregularly amongst the tissues,—sometimes uniting, sometimes separating,—uniting and dividing again,—so as to produce no appearance of a rectilinear, or indeed of a linear, tube.   On the contrary, the course of these vessels is irregular, and varied in every way.   It is such as one may imagine, or may have seen, to be given in water poured in moderate quantity over an uneven surface.

"Every thing, in a word, induces the belief that these capillary vessels are, in fact, not vessels, not tubes, but mere canals or channels formed amidst the tissues, like gutters in a chalky cliff.   The mode of their continual junction and disjunc-

tion; the effect of certain re-agents on the capillary circulation (of a solution of common salt applied to the web of a frog, for example); seems to prove this peculiar character of the capillary vessels.

"Besides this rectilinear course, the veins and arteries are generally disposed *singly*, however deep the tissues. The capillary vessels, on the other hand, exist in great number, in whatever respect we consider them.

"From these and other considerations, I am of opinion that the term *blood-channels* would be a more just denomination for this part of the circulating system."— P. 75.

It is somewhat curious that our author himself will not abide by his own description. In numerous passages of his volume, both before and after the extract now quoted, we read of the " (so called but mis-named) capillary vessels," " capillary tubes," and never once of " blood-channels," as here proposed.

Here is Dr. Hall's theory of Inflammation in a few words :

" 1. We have, first, adhesion of the blood-corpuscles in the blood-channels.

" 2. This leads to Obstruction, and

" 3. This to Congestion.

" 4. We have then hypercrisis, or augmented *secretion;*

" 5. Hypertrophy, or augmented size of the *old*, and the formation of *new*, vessels;

" 6. Hyperendosmosis;

" 7. Augmented *Absorption*, or Ulceration, Phagedæna, &c.

" 8. Death, Sloughing, Gangrene."—P. 90.

The various chapters, although occupying upwards of 100 pages, on " Puerperal Diseases, Puerperal Peritonitis, Puerperal Stomachal and Irritation, on the Effects of Loss of Blood in the Puerperal State, the Diagnosis of Puerperal Disease, the fatal effects of Blood-letting in Puerperal Affections, and the effects of previous Disorder on the Puerperal State," are most vexatiously overcharged with continual repetitions, and, after all, contain nothing but what has been perfectly well-known to the public for the last twenty-five years at least. Almost all the recent treatises on the Diseases of Women exhibit a much more faithful and instructive picture of the phenomena of these morbid conditions, their diagnosis and treatment, than will be found in the present volume. Nay, we have no hesitation in saying, that it would be utterly impossible for any one to distinguish the truly inflammatory affections of the abdominal and pelvic viscera from those disorders, arising from intestinal irritation, fæculent accumulations, &c., which simulate them, if he trusted to the descriptions given of their distinguishing and characteristic phenomena by our author. The treatment, moreover, laid down by him is, in many respects, very far from being judicious. With respect to Dr. H.'s favourite dogma of making the induction of syncope a test as to the propriety of blood-letting, and the standard or measure as to the extent to which it may be carried, very few experienced men, we should think, can receive it as a rule of practice. Inflammatory affections of the abdominal or pelvic viscera in puerperal women will rarely admit of those large and ample blood-lettings, required for their subjugation under ordinary circumstances. To say, therefore, " that nothing should preclude of this remedy, but the actual existence of the state of sinking," is alike unsafe and most indiscreet. Is there not, too, a very misleading discrepancy of opinion upon an important practical

point, in the following two passages, taken from different chapters in the present volume ?   At page 89, we read thus :

" It is well known that blood-letting is better borne in inflammation than in other diseases, and in inflammation of the serous membranes and the parenchymatous substance of organs, than in inflammation of the mucous membranes. This fact has become of great practical value.   It is mentioned here only to complete the list of the phenomena of inflammation.   The fact itself seems to *coincide* with the disposition to form the buffy coat, and with the augmented proportion of fibrine."—P. 89.

Compare this with what we find at page 139.

" I have already noticed that one of the characteristics of intestinal irritation is the susceptibility to syncope upon blood-letting.   This is, of course, much more remarkable upon a second or third blood-letting, than upon a first use of the lancet.   I have now to add, that no dependence can be placed upon the appearance of the blood drawn.   This may be much buffed and cupped, in the puerperal state, without the existence of inflammation ; and in cases of the most decided inflammation, these appearances of the blood may be but little observed."— P. 139.

What with there being in many instances of Puerperal Inflammation, according to our author, neither rigor, heat of surface, acceleration of the pulse, sickness, not even suppression of the lochial discharge, nor any buffy appearance of the blood when drawn, it must be a difficult thing indeed to distinguish the existence of the disease.   But the experienced physician knows full well that there are other symptoms to guide his diagnosis, besides merely the circumstance of abdominal " pain, induced or aggravated upon pressure," which is declared by our author to be " pathognomonic of the disease."

Chap. XXVIII. is a reprint of our author's paper on the " Inverse Ratio which subsists between the Respiration and Irritability in the Animal Kingdom," that appeared in the Philosophical Transactions for 1832. Reference is actually made to the drawings which accompanied that paper, but which are altogether omitted in the present volume !   Dr. Hall coolly informing his readers that he is *compelled* (by what ?) to refer them to the Transactions for the drawing of the instrument which he describes.   This is an easy off-hand sort of manner which great men only, we suppose, are permitted to assume.

This Chapter, as well as the following one on " Hybernation," contains many most ingenious and, what is better, sound views on physiology, which reflect the highest credit on our author's penetration and talent for research. The latter more especially is a beautiful specimen of a well-planned and most ably-conducted investigation of a scientific subject.   It would alone serve to give Dr. Hall a high rank among physiological writers.   As, however, the facts and conclusions of these papers are, or at least ought to be, quite known to the profession at large, being incorporated in various recent works on physiology, it would be altogether unsuitable to dwell upon them here.*

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* A very ample analysis of Dr. Hall's Memoir on Hybernation will be found in the Medico-Chirurgical Review, for January 1840.

Chap. XXX. is a curious example of the restless impatience of Dr. Hall to have something to say upon every subject. It is entitled, "On the Influence of Air, Exercise, Bathing, Clothing." Regular moderate exercise is declared to be good; excessive exertion and fatigue must be injurious, inducing, through over-stimulus, a state of *fever.* So says Dr. H. Nay, he goes so far as to assert that the chief forms of acute and slow fevers, which are not specific, are principally owing to over-exertion and fatigue!

A little further on, we are told that " the rules for taking air, exercise, rest; for bathing and clothing; for food; for soil and climate; still remain to be physiologically deduced and fully unfolded !" In our ignorance, we had supposed that much had been done of late years in the investigation of these hygienic enquiries; alas! it all turns out to be a mistake. When will the spirit of " a profound physiology" be applied to these every-day matters? Take an example from our author on the subject of Dress.

"The clothing should be such as to preserve the temperature, without oppressing the patient on one hand, or exposing him too much to changes in the atmospheric temperature on the other. In our variable climate, flannel should always be worn next the skin; the upper clothing should vary with the external temperature, the direction of the wind, the degree of damp, &c. Too much clothing in warm weather, and too little in severe, are equally injurious."—P. 293.

We need scarcely say that so intelligent an observer as Dr. H. is a decided enemy to the present absurd fashion of exposing children's legs and arms to the sharp cold of winter, with the view of *hardening* them. Much mischief and " many heart-pangs" may often be traced to this foolish fashion. Tuberculous disease is a not unfrequent consequence :—" experiments on rabbits prove this !"

Not less characteristic of our author, is his 33rd Chapter, *On the fatal accident to the American diver.* The reader will perhaps remember that this unfortunate man accidentally hung himself upon Waterloo Bridge before a crowd of spectators, assembled to see him leap into the river. From the complete absence of struggling or other signs of suffering, our benevolent author believes that " the poor culprit suffers not a moment after suspension." In confirmation of this idea, he says :

" I once saw a dog strangled by means of a chord, tied with extreme tightness round the neck. I expected to witness great struggles: there were none. There was not a movement until after some seconds, when convulsive efforts took place. A snake, suspended by the neck, ceases to move that instant."—P. 304.

Really we are not aware that suffocation may possibly be so easy a death. Here is a proposal founded upon this idea :—

" Might we not also avert the sufferings of that part of the brute creation which is slaughtered for our food and sustenance, and thus spare them the pang of the knife, and the pain of dying ? Let (in ?) sensibility be first induced, by a tightened cord, applied so as to compress the jugular and other veins of the neck, and then let the large vessels be divided as at present."—305.

No sooner is utterance given to this expression of humane feeling than we are again forced to enter the shambles of the operative physiologist, to seek for knowledge in the struggles of suffering life.

" In the new edition of M. Flourens' admirable work, an account is given of

an experiment, in which the cerebrum and cerebéllum being removed, and the pneumogastrics divided, in a pigeon, the respiration still continued.

" Now it is well known that the respiration in birds, as in insects, is *diffused*. It is ascertained that the different segments of the insect possess distinct nerves and nervous centres (analogues of the medulla oblongata) for respiration. This is not the case with birds ; but,

" 1. If the air cells throughout the body be, like those of the lungs, supplied with nerves ;

" 2. If these nerves be derived from the spinal nerves, like other nerves of the general frame ; and,

" 3. If these spinal nerves possess the *excitor* property of the spinal nerves in other animals ;

" If these things be, then the result of the experiment is precisely what the theory of the reflex nature of the respiratory acts would have led us to anticipate.

" When, in the mammalia (especially the young), the cerebrum and cerebellum are removed, the respiration continues as a purely reflex action, excited principally through the pneumogastric nerves; when these are divided in addition, a few rare acts of respiration occur, from the influence of the trifacial and spinal nerves. In birds, these spinal nerves are as really excitors of respiration as the pneumogastric itself; they are excitors of the normal respiration; under their sole influence, respiration may continue for hours."—P. 307.

And straightway a new series of manglings and mutilations is announced as being highly desirable, and likely to produce important results !*

Chap. XXXVI., " On the plan of Observation of Diseases of the Nervous System," is a reprint of our author's fourth Memoir, read before the Medico-Chirurgical Society, and published in their Transactions : vide Vol. VI., New Series, and this Journal for January, 1842.

As we noticed this paper very fully at the time of its first appearance, it is unnecessary to do more at present than merely mention its title. It is full of clever suggestions, many of which have a practical bearing; others are ingenious, but fanciful.

We must not, however, dismiss this chapter, without expressing our utter astonishment at finding an actual repetition, word for word, of a letter respecting Lady ———'s " most interesting case" of spasmodic tic, with which our author favoured the readers of the last volume of these " Observations and Suggestions." A good tale is said to be not the

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* While this sheet was passing through the press, we stumbled upon the following admirable remarks in the newly-published volume of Dr. Latham ; they contain, as will be seen, a gentle but severe rebuke of the operative physiology so highly lauded by our author.

" Disease is a great physiological teacher. Perhaps it is the greatest of all. It institutes the experiments which we cannot imitate, and so tells us many things which, but for it, we should never know. I never laid bare a living brain, a living spinal marrow, or a living heart. I never took up a living nerve with the forceps, or noted the behaviour of those organs, severally or reciprocally, under modes of irritation which were of my own contrivance; yet, I have read of experiments which I never performed, and never could bear to see ; and I *may* have learned something from them ; something, how dearly purchased !"—*Lectures on Clinical Medicine*, Vol. II., p. 17.

worse of being twice told ; but the saying only holds true, we believe, of *viva voce* narration.   Here, however, we have the benefit of it in clear legible print.   Is not this too bad ?   There is an audacious trifling with the patience of the public in such an act, that fairly calls for rebuke and reprobation.   But, in short, nothing connected with the name or doings of Dr. Marshall Hall, but merits public attention.   By the bye, he tells us that he had once the intention of withdrawing from practice and proceed-ing to Vienna to prosecute his investigations ; " but that intention was thwarted."   We sincerely trust, for the sake of his posthumous fame, that he will never think of an autobiographical sketch.   Like an eccentric ex-Chancellor of the day, no man could write down his reputation but himself.

The last of Dr. Hall's papers in this volume is entitled, " Plan proposed for the Institution of Blood-letting."   We have only alluded to his views upon this subject, and expressed our partial dissent from them ; but, as the subject is one immediately connected with practice, it may deserve a somewhat ampler notice.   Here is the position, then the illustration, and lastly its practical application :

" Different diseases induce in the constitution different powers or suscepti-bilities in regard to the effects of the loss of blood.   Each disease appears, indeed, to possess its own peculiar and intrinsic virtue in this respect.   This is deter-mined by placing the patient perfectly erect, and bleeding to incipient syncope : the quantity of the blood which flows is the measure of the protective influence of the disease in one class of cases, and of its influence in superinducing a susceptibility to the effects of loss of blood in the other.

" An interesting scale of diseases may be formed representing these properties. It would begin with congestion of the head, or tendency to apoplexy ; inflamma-tion of the serous membranes, and of the parenchymatous substance of various organs would follow ; then acute anasarca ; and lastly, inflammation of the mu-cous membranes.   This part of the scale would be divided from the next by the condition of the system in health.   Below this would be arranged fever, the effects of intestinal irritation, some cases of delirium. reaction from loss of blood, and disorders of the same class with hysteria, dyspepsia, chlorosis, and cholera morbus."—P. 351.

" The practical application of this fact consists chiefly in its affording a rule for blood-letting in all cases in which this measure is required to be fully instituted ; a guard against undue blood-letting, both in this and some other cases ; and a source of diagnosis.

" The quantity of the blood which flows, when a patient requiring full blood-letting is placed upright and bled to deliquium, seems accurately proportionate to the exigencies of the case.   In inflammation, much blood should be taken ; and much blood will flow before deliquium is induced : in irritation, little blood should be drawn ; and there is early syncope from blood-letting.   The quantities are even accurately suited, not only to the exigencies of the disease, but to the powers of the system ; at least, so it appears to me, from considerable experience."— P. 353.

Dr. H. informs us that persons in health, and of moderate strength, will generally faint, if bled in the erect posture, on taking 15 ozs. of blood ; that in Bronchitis little more is borne to be lost than in health : that a stout person in fever (what form of fever is not stated) will frequently faint on losing 10, 12 or 14 ounces.   He has known a patient, of good strength, affected with Cholera, to faint on taking 4 ozs., although she had shortly

before borne to lose 20 ozs. without faintness, under the influence of in-flamed mamma :—there is certainly nothing wonderful in that. He then endeavours to explain the cause of the different degrees of the *tolerance* of blood-letting in different diseases, thus :—

"In all those cases in which the circulation of the heart and larger arteries alone is affected, and especially in such as involve irritation, or exhaustion, there is early syncope on taking blood. But in such cases as consist in an affection of the capillary circulation, and especially such of these as affect the head, it re-quires the abstraction of much blood to induce deliquium. Syncope is prevented by the influence exerted by this state of the capillary circulation over that of the heart and larger arteries, and over the whole system, and especially over the cir-culation within the brain; and it does not entirely subdue the morbid action of the capillary vessels even when induced. To induce syncope in pure fever, we have then but to subdue the state of reaction in the heart and larger arteries. In inflammation, we have not only to do this, but to overcome the influence of a permanent morbid action of the capillaries; this is especially observed in inflam-mation of the serous membranes, and within the head."—P. 353.

But surely Apoplexy, the disease of all others in which loss of blood is said to be best borne, cannot properly be called an " inflammation within the head." There must therefore be some other element besides that of mere inflammatory action to be taken into account, in determining the tolerance of blood-letting in different states of the system. Have not the insensibility and unconsciousness of the individual a good deal to do with the amount of blood which he can lose without fainting ? It is not easy to account in any other way for the enormous depletions that can be borne in cases of cerebral congestion, whether this be of spontaneous or of traumatic origin. In sleep, too, the amount of blood, that may be lost with-out syncope, is decidedly much greater than in the waking state. In short, whenever mental or emotional influence is suspended, the tendency to fainting is very remarkably diminished. Dr. Hall seems to leave, almost entirely, out of consideration the agency of the mind in increasing or diminishing the liability to syncope in different cases. We are therefore by no means disposed to agree with him in regard to the practical value of his *formula*, as a means of diagnosis in doubtful cases, laid down in these words : " If much blood has flowed before syncope occurred, we must suspect inflammation ; if little, we must suspect that, however similar the symptoms, the case is in fact of a different nature—perhaps irritation, perhaps exhaustion."

Again, when there is sharp pain present, more especially when the seat of the pain is not internal or visceral, a patient will generally bear a much more copious blood-letting than he probably could an hour before. We often witness an illustration of this, in the attempts to induce faintishness in cases of recent dislocation. In acute Rheumatism, too, the sharp ar-ticular suffering may have a good deal to do with the tolerance of blood-letting, which is so conspicuous a symptom in this disease. The same remark holds good of almost all acute spasmodic or convulsive diseases ; witness Tetanus.

With respect to the proposal of our author that " in every case, in which full blood-letting is to be instituted, the patient should be placed perfectly erect, and bled to the very first appearance of deliquium," we need

scarcely say that cases are continually occurring in practice, where it is advisable to have a larger amount of blood drawn than may be just necessary to induce faintishness in the upright position. Was such a rule invariably followed, the remedy would often fail of producing the permanent effects upon the system that are desired.

Dr. Hall seems to be quite aware himself of the inapplicability of his rule for blood-letting in certain cases of disease :—

" There are two exceptions to the rule which I have proposed, which I would briefly mention. In some cases of fever requiring blood-letting, the patient cannot support the erect position: in such a case, the arm should be first prepared, and then the patient should be gently raised and supported in the upright position, carefully avoiding all muscular effort ; the vein should then be promptly opened. On the other hand, in the case of congestion of the brain from exhaustion, there is not such early syncope from blood-letting as might be expected ; and yet it is obvious that the system cannot bear the loss of blood. I have known this to obtain in exhaustion from undue lactation."—P. 358.

We should like to know what cases of fever these are to which Dr. H. refers, and in which the patient, although he cannot support the erect position, should be gently raised up into it, and then be bled to approaching deliquium. Is the loss of blood, may we ask, ever advisable under such circumstances ? The case clearly supposes the existence of great debility ; and surely general blood-letting, and that too carried to faintishness, is not the remedy that a judicious physician would employ to relieve either pain, congestion, or even inflammatory action under such circumstances. The local depletion of blood by the cupping-glasses or by leeches will very generally be preferred. The other case alluded to, viz. that of Congestion of the Brain from undue lactation or other exhausting disorders, serves but to confirm the remarks which we have made above, relative to the influence of torpor or unconsciousness as an important element to be taken into consideration in any attempt to investigate the different degrees of tolerance of blood-letting in different states of the system. But without pursuing this subject, who, may we enquire, would ever dream of *general* blood-letting in the case supposed ? And now we must bid adieu to our author.

No one can reasonably deny that he is a man of uncommon powers of mind, of unwearied industry, and indomitable energy ; that he has long and successfully laboured in the vineyard of medical science ; that his varied writings proclaim him to be a keen observer and a subtle reasoner ; that his discoveries in physiology have justly gained for him a foremost place among the investigators of that science ; that to him alone belongs the rare honour of having first clearly propounded and manfully worked out one of the most perplexing problems in the history of animal life, unravelling the meshes of a most intricate perplexity, and pointing out the clue, the Ariadne thread of guidance, to all future explorers through the labyrinth of former darkness and confusion ; that he has thus not only stamped the impress of his thoughts on the medical literature of the day (one of the surest proofs of original genius), and achieved for himself a world-reputation, but that he has also added to the intellectual and scientific fame of his country ; which may now—thanks to the labours of Harvey, Bell and Hall—justly claim the undisputed glory of being the

birth-place of the two mightiest discoveries in physiological science. But. these are not the only merits of our author. His more practical writings, even from the very outset of his professional career, have contributed, in no trifling degree, to render the symptomatology and discrimination of many diseases more accurate and intelligible ; and, although he has been apt on some occasions to exaggerate the importance of a few phenomena or signs as guides for diagnosis and treatment, we cordially award him the praise of having done good service to the practice of Medicine.

How comes it then that the works of such a man should often have called forth so much censure and disapprobation ? That Dr. Hall has met with most unhandsome and unjust treatment from several of our contemporaries, cannot now be gainsayed by any impartial witness. While one party has vainly attempted to rob him of his fair fame, another has, with equal impotence, thought to quench the torch of discovery by refusing to act as one of its honoured light-bearers. No such reproaches can be made by any one against us. We have uniformly maintained the justice of his claims as a great and original investigator of physiological science against all envy and detraction. Ten years ago, we spoke of his labours in these words :—" He has evolved a simple fact (that of involuntary muscular contractions following the irritation of the corresponding sensory nerves, as long as the part retains its connection with the spinal cord) into an extensive and ingenious theory, applied it to the solution of complex phenomena previously surrounded with obscurity, and has done a great deal towards clearing the way to a *precise* acquaintance with the Functions of the Nervous System. Such appears to us to be the meed, which even a parsimonious critic must award to Dr. Hall."* In October 1841, we gave what is perhaps the most complete analysis of his researches and discoveries in neurological science, to be found anywhere out of his own writings ; an analysis that has been more than once referred to in works on the diseases of the cerebro-spinal system. The ample and enlarged notices too, which we bestowed on the four memoirs of Dr. Hall, published in the Medico-Chirurgical Transactions, must have rendered our readers thoroughly and minutely acquainted with the many interesting facts which he has adduced, and with those doctrines by which he has so ingeniously sought to weave the whole into a tissue of the most admirable construction.†

It cannot, therefore, be fairly said that we, at least, have shown any unwillingness to recognise the great merits of our author in various departments of medical literature ; and therefore it was that we felt the less hesitation in withholding our approbation from the first volume of these " Practical Observations and Suggestions." Would that we could consci-

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* Medico-Chirurgical Review, No. 52, p. 306.

† *Vide* Medico-Chirurgical Review, Nos. 63, 67, and 71. We gladly avail ourselves of this opportunity to direct the attention of our readers to the eloquent and ably-argued summary of Dr. Hall's neurological discoveries and doctrines that recently appeared in successive numbers of the Lancet, for August 8th, 15th, and 29th. Some will probably say that the papers are a little too eulogistic ; but no one can fail to admire the lucid exposition, vigorous reasoning, and graceful diction which they display.

entiously make up for the censure of the last by the praise of the present one ! But this cannot be ; and the fault lies solely and altogether with Dr. Hall himself. He is one of those characters that will not correct his errors ; for most assuredly he is not so blind as not to see them, or so indifferent to applause as not to peruse what is written of him. Pertinacity is the very woof of his character. He deems it a point of honour never to change or concede aught, except to himself. Jealous of his own, sometimes to very paltriness, he is continually obtruding it upon the public ; if it won't attend to him to-day, he is determined to force it to do so to-morrow. Hence his continued repetition, *usque ad nauseam*, of the same facts, dogmas, or doctrines, varied somewhat it may be in some accessory points, but not unfrequently dressed out in the very same attire. Thus it is, as we have seen, that he has actually republished in the present volume the very same letter which made its appearance in the former series of these Observations, and which, if we mistake not, had already seen the light elsewhere before. This unworthy blemish of his writings has been pointed out more than once ; but, as a matter of course, no respect is ever paid to the remarks of others. Dr. Hall has not only erred, but he has suffered, much from this arrogancy of character. Had he but learned to listen more to the voice of friendly counsel, and often less to the suggestions of his own impetuous mind ; had he been more conciliatory in his manners, more charitable and forbearing in his disposition ; had he attached less importance to (his panacea) *knowledge,* and more to *wisdom;* had he trusted more for the advancement of his opinions to the irresistible (although slow and silent) force of simple truth, and been less disposed to thrust them upon others by the ruder weapons of controversy and dogmatic iteration, he would have avoided many of those strifes, heartburnings, and detractions which have beset his path, and might have more peacefully enjoyed the sweets of that reputation which he has so meritoriously achieved. Whatsoever be the spirit in which these remarks may be received by him, it matters little to us. Our duty is simple, and straight before us ;—cordially to award praise where praise is justly due, and frankly to express our censure of error, whether this be in the shape of ignorance, wilful negligence, or vain presumption.

SEVENTH ANNUAL REPORT OF THE REGISTRAR-GENERAL OF BIRTHS, DEATHS, AND MARRIAGES, IN ENGLAND. (Abstracts of the Two Years, 1843, 1844). 8vo. pp. 350. London, 1846.

IT is surprising that a so practically sagacious people as the English should so often do things by halves. We have now for some years had an admirable system of Registration in operation, the results of which contained in the Annual Reports are quoted almost daily by British and foreign writers ; and yet the advantages derivable from it have not been extended to Ireland and Scotland, containing a population of between ten and eleven

million. If from the present data valuable conclusions are obtainable, how much more would this be the case when these became nearly doubled? We never could understand why what has been done for England and Wales was not attempted in the first instance for the United Empire. It required no very expensive organisation, and shocked no prejudice ; and even if greater difficulties were to be apprehended in endeavouring to work the measure in Ireland than have been found to prevail here, they should, on account of the great benefits which must accrue from vanquishing them, have been met, not avoided. We are pleased to find the Registrar-General, in his present Report, drawing the attention of the authorities to this important point : and hope that another session will not be allowed to pass by without the blunder being repaired. The able analysis of the Irish Census Returns, by Mr. Wilde of Dublin, and Dr. Stork's spirited exertions at Edinburgh, in framing the Bills of Mortality of that city, show that zealous and efficient coadjutors will not be wanting in either of those capitals. The Registrar-General thus expresses himself, addressing the Home Secretary :

" I submit to you that the Marriages, Births, and Deaths of the people of Scotland, Ireland, and England should all be registered on a uniform plan ; and that the enquiry, which has already been so successful and beneficial in England, into the causes of death, should be extended to Ireland and Scotland. Like the institution of the Coroner's Jury, this enquiry deters from crime, fosters a reverence for human life, and by discerning the causes of premature death in the various circumstances of the population, will contribute to the progress of the science of medicine, diminish suffering, and lead to the prolongation of human life to its natural term. No argument that I am aware of can be used in favour of Registration which does not apply to Scotland and Ireland."—P. 23.

The present Report will not require a long notice at our hands, inasmuch as it contains little else than the tabulated details, and a much smaller number of these than usual. One admirable feature in the working of the Registration Act is the fact that its administrators are never content with the *statu quo*, but are ever desirous of augmenting the amount or increasing the value of the information obtainable through its agency. Thus, we find that it is in future intended to furnish " Abstracts of Deaths at different ages in the different ranks and professions of society, in connection with an Abstract of the Ages of the persons following those professions, as returned at the last Census "—a work of great labour, involving the rearrangement of the Census-returns in correspondence with the Registration districts.

That the active exertions of the Registrar-General would receive the hearty co-operation of the class of the community best fitted to appreciate their importance, might be expected ; and accordingly we are not so much surprised to find that the great mass of our profession has cheerfully aided in furnishing more accurate accounts of the Causes of Death, as we are disgusted at learning that some fifty persons have chosen to throw all the obstacles in the way their insignificant position furnished them with. We believe the Registrar-General possesses the power of compelling these crotchety personages to fulfil so obvious a duty to the public : but probably he is right in not enforcing obedience, on the ground that, " although they may have diplomas, it is probable that the information they would be in-

duced to furnish would be of little comparative value, and might mingle errors among the facts spontaneously supplied by enlightened and accurate observers."

During 1843 and 1844 there were registered.

Marriages	123,818	132,249
Births	527,325	540,763
Deaths	346,446	356,950
Excess of Births registered	180,879	183,813

In the seven years 1838–44, 861,286 marriages, 3,556,649 births, and 2,437,922 deaths have been registered—the Census of 1841 showing a population of 15,912,773, which augmented by the excess of births over deaths would be increased, by the beginning of 1844, to 16,366,876, and by the beginning of 1845 to 16,550,689. This is, however, below the actual increase of population, which probably takes place at the rate of 1·335 per cent., giving 16,684,600, on January 1, 1845, and 17,000,000 before Midsummer 1846. " About 222,000 souls are added to the population of this part of the United Kingdom annually."

All the Marriages and Deaths since 1838 have been registered : but many Births have not. Why the Registration of Births was not rendered compulsory it would puzzle a conjuror to declare. Its not having been so much lessens the value of the returns for the early years ; but the indefatigable exertions of the officers of late years, which the legislature might have well spared them, have now rendered the omissions comparatively insignificant. More *Marriages* were registered in 1844 than in any previous year. The number was 132,249. In 1843 it was 123,818, and but 118,825 in 1842. But so few had not occurred since 1832 as in 1842. From 1839 to 1842 they declined, increased again in 1843, and attained the maximum in 1844—corresponding strikingly with the degree of prevailing prosperity of the country. No less than 4·17 *per cent.* of the men and 13·16 *per cent.* of the women were under 21 years of age. 12·81 *per cent.* of the men, and 8·46 *per cent.* of the women married in 1844 had been previously married. The test of education contained in the power of *signing the marriage register*, has been so frequently alluded to of late, that our readers may like to have the Registrar's opinion upon it.

" Only 67 in 100 men, and 51 in 100 women, wrote their names. It is probable that a few women, able to write letters intelligible to their friends, signed with marks; but this simple test leaves little doubt that 33 in 100 of the men and 49 in 100 of the women of England, at the marriageable age, are either quite unable to write, or write very badly. Some objections have been raised against this return as a test of the state of education. And it should be taken for no more than it is worth. I have already stated that a certain number of the women able to write, either from timidity or from other motives, may not have written their names. Upon the other hand, many who write their names are able to write little else ; and writing the name is no proof of the possession of that stock of the elements of literary and scientific knowledge which it is desirable that the whole mass of a civilised nation should possess. But the return is of unquestionable value, as an evidence of the *relative state* of elementary education in different parts of the country, and at different times. It will be seen

that there is a very slight diminution in the proportion of men who signed with marks during the six years 1839—44.   The average age of men at marriage is about 27 years, and if the mean age of boys during their education be 10 years, the great bulk of the persons married in 1839—44 learned to write between the years 1821—7.   The slow progress of instruction in those years is evinced by the facts that 66·3 *per cent.* of the men wrote their names in the first, and only 67·6 *per cent.* (only 1·3 more) in 1844; while 50·5 *per cent.* of the women wrote their names in the first, and only 50·8 *per cent.* in the last year.   I fear that the records of future years, in exhibiting the results of the inadequate means employed to educate the present generation of youth, will be as little flattering to our age as the actual returns are to our predecessors.   The insufficiency of the national education is the more to be regretted, as the means of education exist, and the funds left for educational purposes, if properly applied, in the charities and public institutions, would, with some assistance from Parliament, supply the children of the poor with the sound knowledge which the scanty earnings of the parents do not enable them to purchase.   The annual income of endowments for education is £312,544. The state of education varies in different counties to an incredible extent.   [We extract a specimen of this from the tables.   In the metropolis 12 *per cent.* signed with marks in 1844; in Cumberland, 16; in Cornwall, 36; in Lancashire, 40; in North Wales, 45; and in Bedfordshire, 50 *per cent.*]: and it will be observed, that in all counties, of any amount of population, the proportion of men and women who write remain very constant, from year to year, or vary slowly."— P. 16.

"*Mortality.*—The annual mortality during 1838—44 was 2·189 per cent., or 1 in 46 of the population.   It was above the average in 1838 and 1840; near it in 1839; lower in 1841 and 1842; and lowest in 1843, 1844.   It varied from 1 in 43·7 (1840) to 1 in 47·2 1843.   In the first three years (1838—40), the mortality was 2·239 *per cent.;* and in the last three (1842—4) 2·147, a fall of $\frac{1}{24}$ part.   Out of an equal population, for every 24 deaths in the first three, there were only 23 in the last three years.   The average price of wheat was 67s. 2d. the first three years, and 52s. 10d. in the last three.   The average price of butcher's meat per cwt. paid at Greenwich Hospital was 48s. per cwt. in the first three, and 44s. 7d. in the last three years.   The mean daily wages of bricklayers, masons, plumbers, and carpenters (of which an account has been kept in the hospital for some years), rose from 5s. 2d. a day, 1838–40, to 5s. 6d. in 1842–4.   The declared annual value of British and Irish produce and manufactures exported from England and Wales was £47,138,173. in the three years 1838–40, and £48,400,977. in the three years 1842–4: the annual official value of imports in the corresponding years was £56,269,884. and £62,141,101.   The annual amount of money expended in the relief of the poor in England was £4,581,600. in 1838–40, and £5,074,600. in 1842–4.   In the last three years, therefore, the price of provisions was cheaper, the commerce and manufactures of the country more active, the relief of the destitute more liberally administered, and the wages of the artisan higher, than in 1838–40; and all these circumstances, favourable to the public health, undoubtedly contributed to the reduction of the mortality observed." —P. 20.

Throughout the seven years, and in all the Registration-divisions of the country, the mortality of males has been greater than that of females. Throughout England, in 1844, to every 100,000 males living, there were 2236 deaths, while but 2074 female deaths occurred to every 100,000 females living.

Returns obtained from France, Prussia, and Austria, for 1843, give the following results :—

To Persons living.	England.	France.	Prussia.	Austria.
One Marriage, . .	130	123	110	123
One Birth, ...	31	35	26	26
One Death, . . .	46	42	37	33

M. Moreau de Jonnés has furnished detailed tabular statements of the mortality of *France* in 1843. From these it appears the total amount of deaths was 811,435 (the population being, according to the census of 1841, 34,230,178), viz. 406,432 male, and 405,003 female deaths. Of these deaths, 2606 took place from small-pox. The male suicides amounted to 1654, and the female 488. There were 235 men and 71 women murdered; and 43 men, 2 women, executed. Accidental deaths amounted to 4,942 among the men, and 1494 among the women. The deaths from epidemic causes (the term being used in a different sense to that implied by it in the English returns) amounted to 1974, the proportion of the sexes being nearly equal.

The Government of *Austria* has likewise furnished some tabular statements, except as relates to Hungary, Transylvania, and the Military Frontier. Likewise excluding these portions of the territory, we find, from the census of Austria for 1840, that the population amounted to 20,975,258. The deaths in the year 1843 amounted to 697,342, viz. 355,518 male, and 341,824 female deaths. Of these 697,342 deaths, 669,889 are returned as *sporadic*, 10,054 as *endemic*, 6,847 as *epidemic*, 3,592 from *small-pox*, 890 from *suicide*, 40 from *hydrophobia*, 442 from *murder*, 5,558 from *accidents*, and 30 from *executions*.

In reverting to the Returns for our own country, we regret we cannot furnish our readers with an account of the *Causes of Death* in 1843 and 1844, as abstracts of these are only contained in the present Report for these years, as far as regards the metropolis, the abstracts for England and Wales coming down only to 1842; and as they were published in the Report of last year (*See Med. Chir. Rev. July,* 1845), we are at a loss to explain their reproduction here. The absence of these returns, and of Mr. Farr's usual letter commenting upon them, much impairs the utility of the present volume. The following is an extract from the Abstract of the Causes of Deaths occurring in the Metropolis, its population being, in 1841, 1,915,104.

Metropolis.	1843.		1844.	
	Males.	Females.	Males.	Females.
All Causes, . .	24961 —	23613	25729 —	24694
Small-pox, . .	254 —	184	942 —	862
Measles, . . .	759 —	683	627 —	555
Scarlatina, . .	981 —	886	1545 —	1484
Pertussis, . . .	863 —	1045	565 —	727
Croup, ...	219 —	168	218 —	193
Typhus, . . .	1083 —	1000	880 —	816
Hydrophobia, .	1 —	1	3 —	—
Hydrocephalus, .	1097 —	711	982 —	781
Convulsions, .	1494 —	1207	1545 —	1191
Bronchitis, . .	464 —	345	616 —	555
Pneumonia, . .	2320 —	1904	2149 —	1915
Phthisis, . . .	3733 —	3371	3750 —	3349
*Childbirth, . .	— —	373	— —	350
Violent Deaths, .	763 —	355	865 —	436

We suspect the compilers of the present volume have been somewhat hard pushed for matter, inasmuch as they have re-inserted the "Statistical Nosology," which is already in the hands of every medical practitioner.

I. The Moral Aspects of Medical Life ; consisting of the "Akesios" of Professor K. F. H. Marx. Translated from the German, with Biographical Notices and Illustrative Remarks, by *James Mackness*, M.D. Consulting Physician to the Hastings Dispensary, &c. &c.   Small 8vo. pp. 348.   London : Churchill, 1846.

II. Life of George Cheyne, M.D.   With Extracts from his Works and Correspondence.   12mo. pp. 141.   Oxford, 1846.

The first of these works is a very interesting and instructive volume, intended and well calculated to do good to the profession.   We sincerely trust that the notice, which we are about to give of its contents, may serve to make it generally known, and may thus induce most of our readers to possess themselves of the book itself.   The German original, entitled, *Akesios ; Blicke in die ethischen Beziehungen der Medicin, von K. F. H. Marx*, was published about two years ago at Gottingen.   It consists of a series of letters addressed to various deceased physicians, the prominent features and events of whose lives, being the subjects of each discourse, are made to afford a pleasing vehicle for a variety of professional and moral reflections. The literary reader will therefore see that the plan is somewhat similar to that which Landor has adopted, with so much success, in his well-known "Imaginary Conversations."

The first intention of Dr. Mackness was simply to translate the Akesios ; but, struck with the fine observations and the many germs of noble thought which often lay buried in a single sentence, he was happily led to extend the plan of his work, by prefixing a biographical notice to each letter, and appending illustrative observations in the way of commentary on its leading thoughts—until it at length acquired its present form.

The meaning of the title which Professor Marx has given his production, and the design which he had in view, are thus explained in his own preface :—

"Ακεσιος, or the Healer (ακεομαι *medeor*) was one of the names by which the Greeks designated the demi-god whom the Egyptians called Harpocrates.   His birth, which was placed in the winter solstice, indicated the feebleness of the wintry sun, whilst it left hopes, also, of his return in spring, to spread new life. Thus was the god at once an emblem of the infirmities of the sick, and of their hopes of recovery.   He was also depicted holding his finger to his lips, symbolising that sacred silence concerning the mysteries of medicine ever required of the initiated.

"I restricted myself, in the following pages, to the former cheering and consolitary symbol.   This work is designed to discuss weighty points in the healing art as it now exists.   As to mysteries,—if, in fact, there be properly any such in

medicine,—they will not here be unravelled. I deal not in this work with systems of healing, or methods of treatment ;—no, what dwells in every heart, and is visible to every eye, and yet is intimately connected with the medical profession, the ordinary, the ethical, the individually personal, this, this alone is my subject. That I have thrown it into the form of letters was for this reason, that I wished through the medium of certain individuals, distinguished, at least, if not universally known, as masters in their particular department, to give prominence to those peculiar characteristics which were exhibited in their practice, their lot in life, or their self-confessions. These persons are no longer living, most of them, indeed, belong to times long since gone by—a circumstance which afforded me all the freer scope for selection, and if the reader does not object to the design of these letters, he will, no doubt, readily excuse the fiction by which I have allowed myself to propound questions and difficulties mooted amongst the living, and to decide upon them through the medium of the departed."—P. 2.

The letters are twelve in number, and are addressed to the following characters—Stieglitz, Petrus de Apono, Dr. Cheyne, Hallé, Dr. James Gregory, Albert Thaer, Dr. Lettsom, Nicholas Tulpius, Pinel, Dr. Mead, Desgenettes, and Boerhaave. We shall select for our notice three or four of the most distinguished names on this list, beginning with the Hippocrates of the Dutch School, the great and good Professor of Leyden.

HERMAN BOERHAAVE was born at Voorhout, near Leyden, in the year 1668. In early life, he made great proficiency in classical literature ; but his progress was checked, in his 12th year, by one of those *apparent* (truly it may be called so) calamities, which, by their sobering and deepening work on the mind, often prepare the character for future eminence. This calamity was the breaking out of a malignant ulcer upon his left thigh, which, for five years, defied the power of the healing art, as it was then known. From this affliction he gained two things—a feeling sense of the sufferings of the sick, and an experimental conviction of the insufficiency of existing modes of practice. After all other means had failed, he cured himself by fomenting the part with salt and urine.

In his 14th year, Boerhaave lost his father, who, a minister himself, had designed to bring up his son to the clerical profession. Soon after this period, he was sent to the University of Leyden, where he continued for several years, and distinguished himself by his talents and assiduity. Mead was his fellow-pupil, and the celebrated Dr. Pitcairn was their preceptor.

In 1690, he took his degree in philosophy. His pecuniary means being then very low, he began to lecture on mathematics, on which he had bestowed great attention, to a select number of pupils, and was thereby enabled to defray his current expenses, and to continue the prosecution of his studies at the same time. Among these, Medicine was one for which he had the highest admiration ; and, although still contemplating the ministry as his future calling in life, he determined to make himself thoroughly acquainted with the art of physic, before he took upon himself any clerical duties. On this determination, Dr. Johnson very justly remarks, in his Life of Boerhaave, " that Providence seldom sends any into the world with an inclination to attempt great things who have not abilities likewise to perform them. To have formed the design of gaining a complete knowledge of medicine, by way of a digression from theological studies, would have been little less than madness in most men, and would have only exposed them to ridicule and contempt. But Boerhaave was one of those mighty geniuses to whom scarce anything appears impossible, and who

think nothing worthy of their efforts but what appears insurmountable to common understandings."

It is interesting to know that Hippocrates and Sydenham were the two authors, whose writings chiefly attracted the attention of Boerhaave. In 1693, he took the degree of Doctor of physic. The subject of his thesis was *De utilitate explorandorum excrementorum in ægris, ut signorum.*

It was now his intention to devote himself entirely to the labors of the ministry.

"But Providence had designed otherwise, and made use of a false and malicious report to turn the current of his activity into that channel in which it could be most useful. Whilst sitting in a common passage-boat, or *treikschuyt,* between Leyden and some adjacent place, several of the passengers were discussing the views of Spinosa, then newly brought before the public, and one person in particular was loud and bitter in his condemnation of them. Boerhaave, though he had on other occasions refuted these views, and though his own opinions were deeply Christian, was yet led by impartial love of justice, calmly to enquire of the speaker whether he had ever read the works of Spinosa. The stranger answered he had not, and should esteem it wicked even to look into them. 'How, then,' said Boerhaave, 'can you pretend to judge of them?' This reproof silenced the declaimer, but a report was circulated by some present that Boerhaave was himself a follower of Spinosa, and from this bigoted and utterly groundless charge, obstacles were raised, which barred his entrance into the sacred profession, and threw him of necessity into one only less sacred than that which he had coveted."—P. 317.

His practice being but inconsiderable for several years, he had the more time—and well did he employ his leisure—for carrying on his favourite pursuits; studying, making chemical experiments, and, in short exploring every mine of medical lore. Nor did he forget the higher duty of deep and thoughtful perusal of the Word of Truth. "Early on every morning throughout his busy life, he retired for an hour for prayer and meditation on the Scriptures. Here, according to his own avowal, he sought and found strength for the duties of the day, and thus was enabled with vigour and cheerfulness to go through his great amount of daily business. In his hours of relaxation his conversation frequently turned on the excellence of the Christian religion, and the value and authority of the Scriptures, delighting to recommend to others what he so highly prized. Health, he was accustomed to say must be promoted by the tranquillity of the mind, and he knew of nothing which could support himself or his fellow-creatures in the calamities of life but a well-grounded confidence in God.

In 1701, he was elected to the chair of the Institutes of Physic in the university of Leyden. Being an eloquent speaker, and deeply versed in all the knowledge of the time, his reputation soon became generally known. In 1714, he had attained the highest honours in the university, and was then also appointed physician to St. Augustine's hospital in Leyden.

In consequence of his early predilection for mathematical, and subsequently for chemical, pursuits, Boerhaave, notwithstanding his ardent admiration of the works of Hippocrates and Sydenham—the two very men whose writings were less imbued with theory than those of any other medical authors—could not emancipate himself from the then prevailing doctrines in reference to disease. Not satisfied, however, with any of the systems that had been proposed, he endeavoured to combine in one and

the same theory the vital physiology of Hippocrates, the chemical prin-
ciples of Silvius, the mechanical views of Borelli and Bellini, besides many
other fanciful incongruities; attributing, however, decidedly more to the
chemical and mechanical forces, than to the more secret and mysterious
powers of life.

> "Thus the calibre of the vessels adjusted to the dimensions of the globules
> composing the liquids of the body formed, according to him, the hydraulic rela-
> tion, on which depended the circulation of the humors, their separation from
> the blood in the different secretory organs, the morbid congestion of the blood
> in various fluxions, in humours, inflammations, and the like, and hence he con-
> cluded that all the efforts of the physician should be directed to establish this
> relation, or rather mechanical equilibrium. Nor did he stop even here. To the
> mechanical hypotheses just mentioned he added others, founded on chemical prin-
> ciples, when, in attempting to explain the causes and the phenomena of diseases,
> he admitted the formation of pretended acrimonies in the blood, which the phy-
> sician ought, according to him, to have constantly in view in order to neutralize
> them—acrimonies which were long famous in the language of the schools, and
> which are still found in that of ordinary life. The whole phenomena of diseases,
> with the spontaneous evacuations by which they are terminated, and which
> constitute the crisis, find a ready explanation of this vicious system, which seems
> to offer a reason, when it only mystifies with a word involving a gratuitous
> hypothesis. In practice, however, theory receives many modifications, and there
> can be little doubt that in prescribing for patients, Boerhaave was more guided
> by experience and good sense than by the strongly eclectic doctrine to which we
> have alluded."*—P. 320.

This system continued to be dominant in the schools for many years
after the death of its propounder, and so high was the reputation of the
professor that the university of Leyden was long regarded as *the* school
in Europe for the sciences of medicine, chemistry and botany. It is re-
corded that the Czar Peter did not consider his education complete, until
he had attended the lectures of Boerhaave. His fame reached even to the
Celestial Empire; for we are told that a letter was once addressed to him
from a mandarin, having the superscription, " To the illustrious Boer-
haave, physician in Europe :"—it did not fail to reach its destination.

In 1722, he was confined to bed for five months with a severe fit of the
gout. Five years afterward he had a violent attack of fever; and the
complaint returning at intervals, he felt himself obliged to resign the pro-
fessorships of Chemistry and Botany. His time, however, continued to be
fully occupied with his professional labours, letters being addressed to him
from all parts of Europe by those who were unable to consult him person-
ally. In spite of his erroneous theory of diseases, his practice appears to
have been highly esteemed, and all acknowledge that his sagacity and
penetration in diagnosis were very remarkable.

It was in the year 1737 that he felt the first approaches of that disorder,
which was to prove fatal. The symptoms, which he himself describes in
a letter addressed to a friend in London, too well attest the nature of the
malady. The following extract cannot but be read with interest, not only

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* Encyclopædia Britannica.

as a faithful description of disease, but as a beautiful specimen of Christian fortitude and resignation.

"Ætas, labor, corporisque opima pinguetudo, effecerant, ante annum, ut inertibus refertum grave, hebes, plenitudine turgens corpus, anhelum ad motos minimos, cum sensu suffocationis, pulsu mirificè anomalo, ineptum evaderet, ad ullum motum. Urgebat præcipuè subsistens prorsus et intercepta respiratio ad prima somni initia; unde somnus prorsus prohibebatur, cum formidabili strangulationis molestiâ. Hinc hydrops pedum, crurum, femorum, scroti, præputii, et abdominis; quæ tamen omnia sublata. Sed dolor manet in abdomine, cum anxietate summâ, anhelitu suffocante, et debilitate incredibili; somno pauco, coque vago, per somnia turbatissimo; animus verò rebus agendis impar. *Cum his luctor fessus, nec emergo; patienter expectans. Dei jussa, quibus resigno data, quæ sola amo, et honoro unicè.*"—P. 323.

Need we say that he died the death of the righteous? He expired on the 23rd September 1738, in the 70th year of his age. The city of Leyden raised a monument to his memory, in the church of St. Peter, with this inscription: *Salutifero Boerhaavi genio sacrum.* It bears a medallion of him, and affixed to this is a ribbon which displays his favourite motto, *Simplex sigillum veri.*

The principal works of Boerhaave are his "Institutiones Medicæ," "Aphorismi de cognoscendis et Curandis Morbis," on which Van Swieten published Commentaries in 5 vols. 4to., and "Libellus de Materia Medica et Remediorum Formulis quæ serviunt Aphorismos."

Boerhaave was a man of very lofty intellectual and moral attainments. No one ever more truly exemplified those graces of character so beautifully described by the Roman satirist:

> Compositum jus, fasque animi; sanctosque recessus
> Mentis, et incoctum generoso pectus honesto.

Conscious of his own rectitude, he always refused to take any notice of slander and abuse. "They are sparks," he used to say, "which will go out of themselves, if you do not blow them." And again: "The surest remedy against scandal is to live it down by perseverance in well-doing, and by praying to God that He would cure the distempered minds of those who traduce and injure us." Pure and noble sentiments! Well would it be if all medical men realized the truth by their own conduct. If they would seek to do so, let them not forget that they must go for instruction where Boerhaave sought and found it; it is expressly said by his biographer that "his deep sense of religion and his devotional habits constituted the basis of his character and the springs of all his virtues." Is it necessary to add that he had solemn thoughts of medical responsibility? He used to say that, where there had been any inattention or negligence, the life of the patient would be required at the physician's hands.*

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* The venerable Hufeland has given utterance to a similar thought. "Remember," writes the late Nestor of German medicine, addressing each individual of the medical profession, "what thou art, and what thou shalt be. Thou hast been appointed by God a priest of the holy flame of life, a curator and dispenser of His highest gifts, health and life, and of the hidden powers which He has laid up in nature for the welfare of man. A high and holy vocation! Exercise it aright, not for thy own profit nor yet for thy own praise, but for the glory of God, and for the benefit of thy neighbour. Hereafter, thou must render an account of thy mission."—*Enchir. Med. f.* 80.

With this biographical sketch before him, the reader will be now prepared to appreciate the force and beauty of the following extracts from Professor Marx's " Letter to Herman Boerhaave."

" 'Simplicity is the seal of Truth,' is in the mouths of thousands who do not belong to the profession. This beautiful and characteristic maxim is the proximate cause of this Letter.

" I am of opinion that earthly action can aim at no higher object than simplicity in thought and deed, and that existence beyond this present world must bring this aim to fuller perfection.

" The physician, like the surgeon, cannot be too simple. If medical science is not to be considered merely as a part of natural history, in which men are to be studied like plants, their properties and strength to be ascertained, by means of microscopes, chemical reagents, and anatomical knives, for the satisfaction of the curious, but as destined under all circumstances to alleviate suffering, lighten and support life, the grand problem consists in this—to search out humanity in all its aspects, and to adapt all remedies as simply as possible to the doing of good.

" Since you understood so well how to blend clearness, logical order, and acute perception with simple truth in all your actions and opinions, I would willingly speak to you on several points, which, in spite of the extension of our knowledge, have not yet attained that plain, regular character in which you would have fixed them.

" In order to attain perfect correctness, it is, as you may easily conjecture, first of all necessary that we should understand one another's language, and that this should remain unalterable as regards the conventional symbols for definite objects and ideas; in our own times, however, we quarrel much about words, and many a one who has to remember in a definition an unimportant improvement, strikes out also a new, singularly-sounding word, thinking he has by that means essentially advanced the matter.

" In the department in which you were once the head, you would now scarcely know yourself; the most familiar things would seem to you strange, and even the student would laugh at your ignorance.

" For fainting, you would hear of *anencéphalohemia;* for apoplexy, *homœncephalorrhagia;* for diabetes, *hyperurorrhœa;* for catarrh, *rhinite;*[*] for mental derangement, *cerebria;*[†] for inflammation, *hematclangiosa.*"[‡]—P: 325–6.

* * * * * *

" But you must not judge of the labours of our time from these and similar examples. As Morgagni[||] loved the simple, so is it still the case with the ablest men, even in respect of the names of objects. It is the novice, not the master, who attaches value to such trifles. The master concerns himself for the kernel, not for the shell, the permanent, not the transitory. The single flower may blow unobserved beside the double, but it is the single alone which produces the seed, the other perishes in its beauty."—P. 327.

Professor Marx then shows by a multitude of instances that, in all departments of the art of Physic, as well as in Pharmacy, Chemistry and other branches of science, the tendency has been, during the present century, to simplify what is complicate, and to educe general principles from a multitude of details.

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* " See for the like, the Nomenclature Organo Pathologique of Piorry. Traité de Diagnostic et de Semeiologie, Paris, 1837, 8vo."

† " Scipion Pinel, Physiologie de l'Homme aliéné, Paris, 1833, 8vo."

‡ " J. F. Lobstein, Essai d'une nouvelle Théorie des Maladies, Strasburg, 1835, 8vo."

|| " A. Fabronii, Vitæ Italorum, Romæ, 1769, 8vo. p. 328.

" Simplifying is spiritualising; is to raise objects to right thought and compre-
hension.

" The more the materials of observation, as of remedies, increase, the more
necessary it is to introduce order and generalisation into the whole, which can
only be attained by simplicity.

" Thus you proceeded in your efforts, directed to the just and enduring, simply
to reduce medicine to the smallest possible quantities, but of well-established
ingredients.*

" As long as the mind is wearied with the manifold and the dissimilar, it will
be easily overpowered by the mass. If, however, it succeeds in mastering the
leading and governing idea, it soon finds the shortest and nearest way out of the
entangled maze.

" A physician whose endeavours are thus directed, will, for the most part, be
enabled to maintain composure and clearness of thought in sudden attacks of
disease.

" From the complication of pressing symptoms he directs the mental eye to the
ascertained, the safe, and certain principles of diagnosis and treatment; like the
Zeus of Homer, who, amidst the clamour of the Trojan combatants, turned his eyes
on the peaceful labours of an inoffensive peasantry.

" The acquirement of such a habit of thinking and acting has an important influ-
ence on the whole plan of life.—P. 331.

And then, passing from the science of Matter to that of Mind, we come
to these beautiful remarks :—

" Even in morals and manners, the simplest natures are ever the noblest, the
strongest. They need no artificial excitement to enliven existence, or to develop
their own hidden qualities.

" As in the great circle of existence all happens from small uncomplicated forms
and laws, so the higher spiritual existence acknowledges in its impressions and
realisations a simple characteristic, whilst it bears on itself the stamp of truth, sug-
gesting and refreshing all minds which come in contact with it. Thus in music,
the simple chords please the ear the most: thus the pure light, which penetrates
the clear fountain or the transparent crystal, is more refreshing than that which
streams through the many-coloured prism.

" The wise man lives, speaks, and acts with simplicity ; the fool cannot employ
variety enough. Quickness in decision and certainty in action, are allied to defin-
itiveness and clearness of expression. For accuracy of perception, and the ability
to be at all times free and ready for action, originate thence in an immeasurable
degree.

" Our idea of the soul must be as the perfection of simplicity: the highest with
which man in his thoughts and deeds, his wishes and knowledge, has to strive,
and which also first imparts the right sanction to the richest internal worth, is sim-
plicity. It is the measure as the test of right, and, as you admirably say, the Seal
of Truth."†—P. 333.

The opening remarks of Dr. Mackness on this letter to Boerhaave are

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* " H. Boerhaav : Praelect. Acad. ed. Alb. Haller i. p. 43 : 'Medicus Italus
misit ad me exiguum libellum, cui titulum fecerat, ' Picola Arte Medica.' In eo
congesta erant in breve compendium, quaecunque indubitatæ fidei propositiones
apud Medicos possunt pro axiomatibus haberi. Ad idem studium excito vos,
quantum possum, auditores ; non alia ratione longius proferetis artem."

† " Even in antiquity the saying was valued :—

Απλοῦς ὁ μῦθος τῆς ἀληθείας ἔδυ.

Euripid. Phœniss. 472."

characterised not less by the appropriateness of the sentiments than by the gracefulness of the language.

" Simplicity is stamped upon all the works of God in creation. The normal type of animal life is a simple ovum ; the commencement of vegetable life is a simple cell ; and from these ova and cells all the varied and complicated forms of vegetable and animal matter emanate. The simple law of attraction holds the earth in its orbit, and determines the motions of the planets : the same law, variously modified, influences the form of every part of the material universe. If we get into the world of mind and spirit, simplicity still meets us ; and thus in religion the Gospel—the Divine plan of salvation—is simple, as Cowper has beautifully sung :

> " Oh ! how unlike the complex works of man,
> Heaven's easy, artless, unencumber'd plan :
> No meretricious graces to beguile,
> No clustering ornaments to clog the pile.
> From ostentation as from weakness free,
> It stands, like the cerulean arch we see,
> Majestic in its own simplicity."

" The expression of true feeling is simple ; children and persons under strong excitement, usually speak in simple language. The simplest poetry is ever the most really sublime. Marx has an exquisite illustration of the beauty of simplicity in his instance of the single, not the double flower, being that which bears the fruit ; and as it is with reference to medical studies, to medical practice, and to medical life that he writes, let us enquire how far in these matters simplicity is indeed the seal of truth."—P. 334.

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" There can be no doubt that the single element of simplicity of purpose, the simple aim to do our duty, the simple reliance upon Divine support and guidance, would strike at the root of all the faults and follies observable in manners and deportment, and would go further towards forming an easy and agreeable address than all the maxims of Chesterfield. For what is it that most frequently renders the manners of persons disagreeable ? It is something which arises from the hidden root of *self-seeking;* either affectation, pedantry, egotism, self-sufficiency, assumption, or superciliousness."—P. 341.

That simple but most comprehensive maxim of Christian morality, " Do unto others as you would that they should do unto you," is the foundation of all sound professional ethics. No physician can be much at a loss how to conduct himself, either to patients or to his professional brethren, if he follows this as the guide of his life. Well has Professor Marx observed, that " Medical Science is not merely a part of Natural History ; it is not a mere field for curious investigation, an arena for the sharpening of men's wits by ingenious theories and elaborate discussions ; it has a momentous responsibility, an important practical aim, that aim being, under all circumstances, to alleviate suffering, lighten and support life. Its grand problem therefore is, to search out humanity in all its aspects, and to adapt all remedies as simply as possible to the doing of good."

Would that the truth of these remarks were more deeply felt and more openly recognised by the profession at large !—in private as well as in public, in our dispensaries and hospitals, in our books and journals, in our meetings and associations, in our schools and colleges, in the every-day walk of every individual ; each and all of us remembering that we are but as missionaries and messengers in the hands of Him, one of whose great

offices it is " to heal the sick, to open the eyes of the blind, and to speak comfort to those that are afflicted."*

Recurring to Boerhaave's favourite motto, that " simplicity is the seal of truth," Dr. Mackness closes his comments on the letter to him in these words :

" May we then learn to be simple; simple in our *object*, simple in our *views*, simple in our *practice*, simple in our *habits*, simple in word and deed. But whilst we aim at simplicity, let us take care that we have truth for our foundation; for many systems and theories are apparently very simple, but being based on insufficient evidence, they are wanting in the important element of truth. There is no doubt but that truth is in itself always simple, but in our limited knowledge we may not be able to grasp it in its entirety, and therefore to perceive its simplicity, and may mistake for it some specious counterfeit which appears to bear a simple aspect."—P. 345.

The next character that we propose to introduce to our readers is that of Boerhaave's school-fellow, and almost equally distinguished cotemporary, Dr. MEAD.

The Rev. Matthew Mead, the father of Dr. Mead, was one of the 2000 ministers who were ejected from their livings on St. Bartholomew's day, by the Act of Uniformity, during the profligate reign of Charles II. Up to that time, he had been parish-minister of Stepney, and, after his ejectment, he continued to preach to a congregation of Non-conformists in the same place ; and there his son Richard was born Aug. 11, 1673. Ten years after this date, the aged minister, being accused of disloyalty, was obliged to retreat into Holland ; but, as he had a handsome fortune, this expatriation did not prevent him from giving his numerous family a liberal education. When sixteen years of age, Richard, one of 13 children, was sent to Utrecht, where he studied three years under the celebrated Grævius. Subsequently he went to the university of Leyden, where he attended the lectures of Pitcairn on the theory and practice of medicine, and those of Hermann on botany. Having completed his medical education, he made the tour of Europe, in company with Dr. Pellet, afterwards president of the London College of Physicians. At Padua, in 1695, he took the degree of Doctor; and, after visiting Rome and Naples, he returned to England in the course of the following year, married, and commenced practice at Stepney. In 1701, he published his work on Poisons. It has been remarked that there is in it a marked degree of reserve in speaking of certain deleterious substances, in consequence, it is believed, of the prevalence of secret poisoning in those days. He afterwards wrote on the Influence of the Sun and Moon upon the Human Body, and presented to the Royal Society an analysis of Bonomo's letter on the cutaneous worms which generate the Itch. In 1703, he was chosen physician of St. Thomas' Hospital, and was appointed by the Company of Surgeons to read anatomical lectures in their hall. In 1707, the university of Oxford conferred a doctor's degree upon him, and in 1716 he became a fellow of the College

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* By some the name ΙΗΣΟΥΣ is derived from ιαομαι, ιησομαι, medeor, sano.

of Physicians. Mead was now in extensive practice, and had a warm and firm friend in Dr. Radcliffe, to whose practice, and house in Bloomsbury Square, he succeeded at his death. The day before the death of Queen Anne, Radcliffe being confined to the house with the gout, Mead was summoned to visit the royal patient. In 1721, he was deputed to super-intend the inoculation of some condemned criminals; the experiment suc-ceeded, and the *operés* were set at liberty. In 1727, he was made physician to George II., whom he had served in that capacity whilst he was Prince of Wales; and he had afterwards the pleasure of seeing his two sons-in-law, Drs. Nichols and Wilmot, his coadjutors in the same eminent station. In 1747, he published a treatise on Small-pox and Measles, in Latin. He also wrote a short discourse concerning Contagion, &c.; in which he gave directions for a system of medical police, with a view of preventing the spread of the Plague which, being then at Marseilles, had caused great alarm in England.

Dr. Mead was a staunch whig, and had considerable influence with the then dominant party in the state. His generous use of this influence in the case of Dr. Friend was a splendid example of magnanimity and friend-ship.

"Dr. Friend had been committed to prison on suspicion of treasonable prac-tices on behalf of the House of Stuart. Mead made many attempts to procure his discharge, but in vain, till being called in to attend Sir Robert Walpole, he made his friend's release the *sine qua non* of his attendance. The minister surrendered, and Friend was liberated; and, at an entertainment given at Mead's house to celebrate this event, the generous host put into the hands of his friend a bag con-taining 5,000 guineas, being the amount of fees which he had received for him during his incarceration."—P. 225.

Mead was a remarkably prosperous man. It has been said of him that, of all physicians who ever flourished, he gained the most,* spent the most, and enjoyed the highest favour during his lifetime, not only in his own, but in foreign countries. He was a munificent patron of literature and the arts, and was intimately acquainted with the leading men of talent of the day. With Boerhaave he long kept up a constant correspondence. Garth and Arbuthnot were his chosen friends. Pope was a frequent guest at his table, and has sung his praises in the well-known lines—

> "Alive by miracle, or what is more—
> Alive by Mead."

Young, too, has celebrated the medical skill of his friend and physician:

> How late I shuddered on the brink! how late
> Life called for her last refuge in despair;
> That time is mine, O Mead! to thee I owe.

His charity and hospitality were large and ample, on a scale indeed of princely generosity. In his house in Great Ormond Street, he had a spacious

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* The average annual receipts of his practice amounted, for several years, to between six and seven thousand pounds, at a time when the value of money was much greater than in the present day.

gallery filled with the treasures of art and literature. The catalogue of his library contained 6592 separate volumes, and his pictures sold, after his death, for £3400. He had, moreover, splendid collections of statues, prints, drawings, coins, and articles of vertu. He corresponded with all the principal men of letters in Europe, and in the decline of his life he received an invitation to visit the King of Naples, and inspect the newly-discovered city of Herculaneum—an invitation his advanced age compelled him to decline.

It was principally to him that the several counties of England and our colonies abroad applied for the choice of their medical men, and he was likewise consulted by foreign physicians from Russia, Prussia, Denmark, and other countries.

Among his other munificent acts, he caused the beautiful and splendid edition of Thuanus' history to be published in seven volumes folio ; and, by his generous interposition, Mr. Sutton's invention of drawing foul air from ships and other close places was carried into execution, and all the ships i _ his Majesty's navy were provided with this useful machine. In short, nothing pleased Mead more than to call hidden talents into light, to give encouragement to meritorious projects, and to see them executed under his own eye. It was he also who induced the wealthy Citizen Guy to found the hospital that bears his name.

In the decline of life, Mead composed his " Medica Sacra," or commentary on the most remarkable diseases mentioned in the Bible. His " Monita et Præcepta Medica," were published still later. He died in February, 1754, in the eighty-first year of his age.

Professor Marx's letter to Dr. Mead opens thus :

" It is a common saying that the King never dies, because he is immediately replaced ; with equal justice may we say that a great man never dies, because he cannot be replaced.

" Having known and admired you for years, I turn to you, the object of my highest veneration, as to an old acquaintance. That we have never seen each other is nothing to the point. The blind never see their parents, the deaf never hear a brother's voice, and many see and commune with one another daily without ever really knowing each other.

" When a person like me writes to another so late in the day, it is to be presumed that he has made himself acquainted not merely with the whole man and his achievements, but also with his 'times,' that chief of re-agents, and blowpipe of events. The most accurate analysis brings out to our view the finished scholar, the distinguished practitioner, and the man of noble mind. It is to address the last-mentioned alone that I take up my pen.

" Of the many things which I have heard related of you, nothing has so much pleased me as your friendly conduct towards your school-fellow Friend. He would have long lain in the Tower, to which his too bold speeches in 1722 against the government as a member of parliament had consigned him, had you not obliged the Minister Walpole to set him at liberty. Not satisfied with this, you handed over to him £5000, received as fees for him in the interval of his imprisonment.

" The pious reflections which this genuine scriptural occurrence* suggest are these, that you were not induced by envy to wish a fellow-physician a thousand

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* " In the ' Medica Sacra,' which you wrote after fifty years' practice, you say,

miles off, or even in the land of shadows, but that you were desirous of having him near you, and that you gave up to him a sum for fees which in any other country would scarcely be accumulated during a long life, even with the help of government salaries, patrimony, and every legitimate service."—P. 228.

After some very pertinent observations on the jealousies and unhandsome dealings that are but too frequent among medical men, from one to another, Professor Marx very pointedly remarks : " Discord and strife are unworthy of the science of healing ; war is only a disease.* Harmony and open honesty should be the symbol of professional intercourse. Hogarth, indeed, in his ' Analysis of Beauty,' speaks of the serpentine line as the line of beauty ; but in common life the straight line is to be preferred to the crooked one."

" It is not necessary that a man should sacrifice his nature, one can be independent without giving pain. Neither need we look upon active restless characters as dangerous, their excitability works for those who travel in beaten paths, like sour leaven or like caprification. For instance, a wild fig tree is set in the neighbourhood of the cultivated trees, that the insects from the wild one may pierce the buds of the others, and cause them to ripen more quickly."—P. 231.

We have then, towards the close of the letter, some very flattering com-pliments addressed to England, and the character of its people. Graceful-ly commemorating us and our country as

> " This happy breed of men, this little world,
> This precious stone set in the silver sea."
> (Rich. II., Act ii.

Marx alludes, with evidently cordial pleasure, to an incident which oc-curred to him in his visit (of which he has given a description in his former work, " Erinnerungen an England ") to our shores.

" The victory of the will over matter is there everywhere apparent. Amongst my agreeable recollections, I place a stroll in the neighbourhood of London as far as Highgate with a friend, where at leisure we enjoyed the influence of retirement. You will remember that this was the place where, at a former period, the greatest thinker of England was struck by the angel of death on the first day of Easter, 1626. Lord Bacon was riding there with his household physician, D. Wilberborne. Snow was on the ground, and an idea struck him that it might be used to preserve meat from putrefaction like salt. Immediately they dismounted, went into a cottage close by, bought a fowl, had it drawn, and then stuffed it with snow. In this occupation Bacon became so unwell, that he was immediately after-wards compelled to go to bed, and in a few days after expired.

" The peculiarity and remarkable character of the natives occasioned me to make a reflection from which I will no more wander. There appears to be in England a kind of necessity to know the contrary side of everything which is

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in the commencement of the preface : ' Scripta sacra, ut hominem Christianum decet, frequentius evolvi ;' and at the end of the same : ' Fidem Christianum ab omnibus suis cultoribus id in primis exigere liquet, ut quaevis humanitatis ac benevolentiæ officia sibi in vicem praestent.' "

* " Benjamin Rush has written (Natural History of Medicine among the Indians— in his Inquiries, 5th Ed. vol. i., Philadelphia, 1818, p. 66) : ' War is nothing but a disease, it is founded on the imperfection of political bodies, just as fevers are founded on the weakness of the animal body.' "

revered and admired. They are as eager for the caricature as for the original. This seems to brace them like a cold sea-bath against a diseased sensibility. Their seriousness calls forth humour, their spirit of contradiction, satire. Out of the great they extract the ludicrous, not to trample it to the dust, but to survey it on the other side, to preserve themselves from over-valuing it, and to maintain a fitting moderation with regard to it.

"It is to you that the medical body is in a great measure indebted for the high esteem which they enjoy in that kingdom, and as there is an invisble church in science as well as in religion, even a foreigner may on this account be grateful to you."—P. 233.

Dr. Mackness's observations on this letter to Dr. Mead are chiefly occupied with comments on the duties of medical men towards each other. He shows, by several examples, the evils of those petty rivalries and unworthy disputes that have, alas! in all times dishonoured, nay sometimes have even degraded, the noble profession to which we belong. Among other illustrations, he contrasts the high-minded feeling of generous friendship that existed between Dr. William Hunter and Cullen, with the unhappy controversy that existed between Dr. Leeds and Dr. Fothergill; the conduct of the latter on this occasion having, it must be confessed with regret, left a blot on his otherwise fair and dignified reputation. He very justly remarks that, " the only real cure for the hydra-headed evil of medical jealousy we believe to be in the elevation of view and purity of purpose of the individuals themselves. He who looks most on the Whole and to the Future is least likely to be taken up with the squabbles of the present."

For the particulars of the following biographical notice, we are indebted to the excellent little work, " The Life, &c." whose title is affixed to this article.

GEORGE CHEYNE was born in Scotland in 1671. Little or nothing is known of his family; but he himself has gratefully acknowledged the advantage of having enjoyed " the instruction and example of pious parents." Being originally intended, like Boerhaave, for the ministry, he received a liberal education. While a tutor in a gentleman's family, he was induced to turn his thoughts to the study of Medicine by the celebrated Dr. Pitcairn, of whom mention has been already made, and whom he always loved to call " his great master and generous friend." His early predilection for the abstract sciences prepared him to adopt with energy and zeal the doctrines of the Mathematical or Mechanical School that Dr. Pitcairn had mainly contributed to introduce and render popular in this country. Having completed his medical studies (probably) at Edinburgh, he removed to London about the age of thirty, and soon after commenced practice as physician in the Metropolis. His account of himself at this time is very amusing. Hitherto he had been a sober, temperate, hard-working student; now he became the jolly frequenter of taverns and coffee-houses, with the view, it would seem, of acquiring notoriety, and enlarging the circle of his friends. " I found," says he, " the bottle-companions, the younger gentry, and free-livers, to be the most easy of access, and most quickly susceptible of friendship and acquaintance; nothing being necessary for that purpose, but to be able to eat lustily, and swallow down much liquor; and being naturally of a large size, a cheerful temper, and tolerably lively

imagination, and having, in my country retirement, laid in store of ideas and facts ; by these qualifications I soon became caressed by them, and grew daily in bulk, and in friendship with these gay gentlemen and their acquaintances.

" I was tempted to continue this course, no doubt, from a liking, as well as to force a trade, which method I had observed to succeed with some others; and thus constantly dining and supping in taverns, and in the houses of my acquaintances of taste and delicacy, my health was in a few years brought into great distress by so sudden and violent a change. I grew excessively fat, short-breathed, lethargic, and listless."

The result was a severe attack of intermittent Fever, followed by symptoms of threatened Apoplexy. When these at length subsided, he fell into a gloomy, hypochondriacal state, which, in the hands of an all-gracious Providence, was made the turning-point of his future welfare and happiness.

Previous to this period, Dr. Cheyne had brought his name before the public by two or three works which excited a good deal of attention at the time. In 1702, he published anonymously his " New Theory of Fevers," in vindication of the Iatro-mathematical views of his friend Dr. Pitcairn. To a modern reader, it exhibits a strange appearance ; for, on turning over the leaves, it would seem to be a mathematical, rather than a medical work, being full of *postulates, lemmata, scholia, propositions, corollaries, geometrical figures,* &c. Such was the fashion of the age. It reached a fourth edition in 1724.

" His next sally" (1703), to use his own phrase, " was a book of abstract geometry and algebra, entitled ' Methodus Fluxionum Inversa,' brought forth in ambition and bred up in vanity." This involved him in a dispute with De Moivre, a celebrated French mathematician : and, as is the case with most learned disputes, the controversy on this occasion gave rise to a good deal of personal acrimony, at least on the part of our author.* He,

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* The reader will be gratified, we should think, with the following observations, in which Dr. Cheyne expresses his estimate of the value of mathematical and other abstract studies, to the medical men more especially.

" To own a great but grievous truth, though they may quicken and sharpen the invention, strengthen and extend the imagination, improve and refine the reasoning faculty, and are of use both in the necessary and the luxurious refinement of mechanical arts ; yet, having no tendency to rectify the will, sweeten the temper, or mend the heart, they often leave a stiffness, positiveness, and sufficiency on weak minds, much more pernicious to society and the interests of the great end of our being, than all the advantages they bring them can recompence. They are indeed edge-tools, not to be trusted in the hands of any, but those who have already acquired an humble heart, a lowly spirit, and a sober and teachable temper. For in others they are very apt to beget a secret and refined pride, an over-weening and over-bearing vanity, (the most opposite temper to the true Gospel spirit, which, without offence, I may suppose to be the best disposition of mind,) that tempts them to presume on a kind of omniscience in respect of their fellow-creatures, that have not risen to their elevation; and to set up for an infallibility, or at least a decisive judgment even in matters which do not admit of a *more* or *less*, (their proper object,) of which kind whatever relates to the Infinite Author of our being most certainly is."—P. 16.

however, more than atoned for his error afterward, by the honourable manner in which he apologised for his conduct.

"The defence of that book," says he, "against the learned and acute Mr. Abr. De Moivre, being written in a spirit of levity and resentment, I most sincerely retract, and wish undone, so far as it is personal or peevish and ask him and the world pardon for it; as I do for the defence of Dr. Pitcairn's 'Dissertations' and the 'New Theory of Fevers,' against the late learned and ingenious Dr. Oliphant. I heartily condemn and detest all personal reflections, all malicious and unmannerly terms, and all false and unjust representations as unbecoming gentlemen, scholars, and Christians; and disprove and undo both performances, as far as in me lies, in every thing that does not strictly and barely relate to the argument."—P. 17.

In 1705, Dr. Cheyne brought out his "Philosophical Principles of Natural Religion;" a work that seems to have been a good deal esteemed ; as it was used, he informs us, at both Universities as a text-book for the students.

It was probably at this period that our author was arrested in his course of convivial dissipation by the hand of sickness. The fever and threatened apoplectic seizure had left him a prey to severe headaches, giddiness, and lowness of spirits, with a broken and cachectic constitution into the bargain. As a matter of course, he found himself speedily deserted by his former boon-companions, to whom his fund of wit and lively conversation had rendered him peculiarly acceptable. His health, indeed, had suffered so much that he was obliged to retire into the country.

"While I was thus forsaken by my holiday friends, and my body was, as it were, melting away like a snow-ball in summer, being dejected, melancholy, and much confined at home, by my course of mineral medicines, and country retirement, I had a long season of undisturbed meditation and reflection, (my faculties being then as clear and quick as ever,) which I was the more readily let into, that I concluded myself infallibly entering into an unknown state of things."—P. 22.

The result was indeed a happy one to him, as to many others who have been suddenly chastened by sickness and pain, at a time when all was gay and prosperous about them. What seemed an affliction is made a blessing. How full of deep and solemn truth are these words of our great bard !

> "There is a soul of good in all things evil,
>   Could men observingly distil it out."

Quiet reflection brought Dr. Cheyne to a sense of higher duties and nobler enjoyments than he had yet thought of. Then it was that he became more calm and cheerful, and his gloomy thoughts forsook him. These are his own words: "I never found any sensible tranquillity or amendment, till I came to this firm and settled resolution in the main : viz. *To neglect nothing to secure my eternal peace, more than if I had been certified I should die within the day ; nor to mind anything that my secular obligations and duties demanded of me, less than if I had been insured to live fifty years more.*" A sentiment which Samuel Johnson took pleasure in repeating : it deserved, said he, " to be imprinted on every mind."*

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* There is another of Dr. Cheyne's sayings that has been rendered familiar to

Dr. Cheyne's health, although much improved by his retirement into the country and the low regimen he pursued, was not yet completely restored. He was therefore advised to try the Bath waters. He did, and found considerable relief for some time. About this time, he commenced living upon a diet of milk and vegetables. From this system he derived great benefit, diminishing much in corpulency (for he was of enormous size), and recovering his strength and activity entirely. At length he was enabled to resume his professional avocations; dividing his time between Bath and London, and devoting his attention chiefly to the treatment of chronic, and especially to low and nervous, cases. In course of time his practice must have become very prosperous, as he was one of the leading physicians at Bath under the fashionable reign of Beau Nash. How long he kept upon the milk diet, is not known; but it would seem that about the year 1712, he began to resume the use of animal food; and, for several years afterwards, he appears to have continued in good health.

In 1715, he published his second part of his " Philosophical Principles of Religion." In it he applied mathematical reasoning to the discussion of theological doctrines, as he had previously done to the examination of medical questions; and with nearly equal success.*

It was in 1720, that he commenced that series of popular medical works which brought him so much reputation in his life, and by which he is now chiefly known The first of these was the " Essay on the Gout and Bath Waters." It proved very successful, passing through seven editions in six years. Its concluding observations are as follow :

" As it is only the rich, the lazy, the voluptuous, who suffer most by the Gout, (I mean *acquired* Gouts, and those hereditary ones enraged by luxury,) so those only who have spent their life-time under its tortures best can tell, what astonishing miseries wealth and vice bring upon human kind. When the gouty humour has seized upon all the noble principles of life, when it has broken, subdued, and obstructed all the fine pipes and slender passages, in whose openness and soundness all the exquisite sensations, all the delicate usages of the animal faculties consist; when nothing but pain, and melancholy, frightful ideas, horrible dreams, and black despair, remain ; who would not have parted with the richest delicacies, the most delicious wines, the most enticing vices, for a plain simple diet, a useful laborious life, freedom from pain, and a good conscience ? Temperance only, divine, innocent, indolent, and joyous temperance, can cure or effectually relieve the Gout : for let us, or our brethren the *quacks*, brag what we will,

' Tollere nodosam nescit medicina Podagram.' "—P. 36.

Notwithstanding his own precepts, it would seem that our author must have gradually lapsed, in some degree at least, into his early habits of free living; for we find that in 1723, after having become enormously lusty

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us by being quoted with approbation by Johnson : " Everything is best as it has been, except the errors and failings of our free wills."

* Among other works of that day was one entitled " Theologiæ Christianæ Principia Mathematica," from the pen of the Rev. John Craig, Vicar of Gillingham, Dorsetshire. One of the propositions stands thus :—Valor verus expectationis ad obtinendam voluptatem a Christo promissam est infinito major vero valore expectationis obtinendi voluptatem vitæ presentis.

(weighing more than 32 stone !) he had a severe attack of fever and erysipelas. His health continued infirm for a year and a half. He again had recourse with excellent effects to his milk and vegetable diet, and to this regimen he almost entirely confined himself during the remainder of his life.

What adds much to the interest of Dr. Cheyne's biography is the exhibition it, more than once, affords of strong-hearted diligence and activity of mind struggling with and overcoming the depressing effects of bodily infirmity. While scarcely expecting ever to recover from his late illness, we find that he was busily engaged in writing his well-known " Essay on Health and Long Life," one of the most successful medical works that was ever published. It ran through seven editions in the course of two years. It was translated into Latin, French and Italian. It has been reprinted in this country within the last 20 years. The charm of the work consists in its being the faithful and well-told record of the author's personal experience ; and, being written in a fine bold manly style alike of thought and language, and replete with sound maxims of moral as well as professional wisdom, it still deserves, and indeed retains, a place in the physician's library.

" If this work added much to Dr. Cheyne's popularity and reputation, it also exposed him to a storm of ridicule and banter, chiefly on account of the abstemious regimen recommended, which no doubt in the eyes of the world contrasted strangely enough with the peculiarities of his personal appearance. ' Some good-natured and ingenious retainers to the Profession,' (says he,) ' on the publication of my book of ' Long Life and Health,' proclaimed every where that I was turned mere enthusiast, and resolved all things into allegory and analogy, advised people to turn monks, to run into deserts, and to live on roots, herbs, and wild fruits ; in fine, that I was at bottom a mere leveller, and for destroying order, ranks, and property, every one's but my own : but that sneer had its day, and vanished into smoke. Others swore that I had eaten my book, recanted my *doctrine and system*, (as they were pleased to term it,) and was returned again to the devil, the world, and the flesh. This joke I have also stood. I have been slain again and again, both in verse and prose ; but I thank GOD I am still alive and well."—P. 59.

In 1733, Dr. C. published another of his most celebrated works, entitled, " The English Malady, or a Treatise of Nervous Diseases of all kinds, as Spleen, Vapours, Lowness of Spirits, Hypochondriacal and Hysterical Distempers, &c." It is in this that he has given an account of his own case (from the narrative of which most of his personal history is derived), and also the very remarkable one of Col. Townshend, who seemed to have the power of suspending the action of the heart by a mere effort of his will.

In 1739 appeared his " Essay on Regimen, together with five Discourses, Medical, Moral and Philosophical ;" but it failed to interest the public : " the mixture of mathematical language tends to render the work repulsive, and in some places unintelligible to all but mathematicians." Three years subsequently he published his last work, entitled " The Natural Method of curing the Diseases of the Body and the Diseases of the Mind depending on the Body." This was much more successful than the preceding one. It was dedicated to Lord Chesterfield, whose letter of acknowledgement we should have liked to have transcribed entire, had our limits allowed. Here is its closing paragraph :—

" I read with great pleasure your book, which your bookseller sent me according to your directions. The physical part is extremely good, and the metaphysical part may be so too, for what I know: and I believe it is; for, as I look upon all metaphysics to be guess-work of imagination, I know no imagination likelier to hit upon the right than yours; and 1 will take your guess against any other metaphysician's whatsoever. That part which is founded upon knowledge and experience, I look upon as a work of public utility, and for which the present age and their posterity may be obliged to you, if they will be pleased to follow it."—P. 102.

This last work is more exclusively practical than perhaps any of Dr. Cheyne's other writings. It contains many valuable observations on the treatment of diseases, and on the management of our moral faculties, that will well repay an attentive perusal. Some good extracts are given in the "Life." The author did not survive its publication more than a twelvemonth. He died on the 13th of April, 1743. In one of the papers of that day, he is called " a learned physician, a sound Christian, a deep scholar, and a warm friend." The following is the fair and judicious estimate which the writer of the " Life" has taken of Dr. Cheyne's medical writings:

" The class of "*popular*' medical books is almost universally condemned by the more respectable members of the Profession, and for the most part deservedly; as in many cases these works are likely to lead to mischief by giving that ' *little* learning,' which in Medicine is peculiarly ' a dangerous thing.' The chief objection, however, against them arises not so much from the fact that they are addressed *directly* to the public, instead of through the medium of the Medical Profession, (for the highest truths may be conveyed in a popular form,) as from the general character of the books themselves, which for the most part bear evident marks of the incapacity of the writers. Occasionally, however, there have arisen men, like Cheyne and Tissot,* who, while they have proved that they are fitted to instruct their professional brethren by their purely scientific writings, have nevertheless not disdained to endeavour to supply the public with really *good* books of popular medicine, instead of the worthless or dangerous trash they so greedily devour. Dr. Cheyne's writings, which were much read and had an extensive influence in their day, procured him a considerable degree of reputation, not only with the public, but also with the members of his own Profession. If they present to the reader no great discoveries, they possess the merit of putting more prominently forward some useful but neglected truths; and, though now probably but little read, they contain much matter that is well worth studying, and have obtained for their author a respectable place in the history of Medical literature."—P. 129.

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* To these two names, how well may we now add that of one not less eminent in his day than either—the author of the admirable " Change of Air," the " Essay on Indigestion," the " Stream of Life," &c. not to mention the more classic and standard work on " Tropical Climates." It would be easy to point out several features of resemblance in the professional careers of Dr. Cheyne, and of our late dear and venerated friend. One will suffice. We have seen that the former composed his first successfully popular work, while labouring under bodily and mental depression. So it was with Dr. James Johnson. His " Essay on Indigestion," that first fairly established his practice as a leading physician, was suggested, we might rather say, prompted by personal experience of the wretched hypochondriasis which the malady is so apt to induce. *Vide* the Biographical Sketch in the Medico-Chirurgical Review for January, 1846.—*Ed.*

The preceding biographical sketch having grown under our hands into somewhat larger dimensions than was intended at first, we must curtail our notices of Professor Marx's letter to Dr. Cheyne, and of Dr. Mackness' comments upon it.   From the former we select the following passage :—

" There are two things which I attribute to you, and which conspire to awaken confidence in your character and judgment: the one is your decided aversion to all personal strife, the other your well-grounded recommendation of water-drinking. The accidental remark that abstinence tends to produce serenity of mind, is one that I can heartily subscribe to.

" Should I ever take upon me to publish my sentiments on dietetics, my rules for the promotion of happiness will be based on a few propositions ; tending to manifest that health is a virtue, cheerfulness a duty.   I would show that one cannot be too deeply impressed with the feeling of aversion to sickness, for a sickness which is incurable is not only a clog, but a lie against our destined lot.   The *valere aude* I would put forth as the general salutation."—P. 36.

" My efforts will be limited to the endeavour to exhibit the simplest means by which to preserve continued cheerfulness, to have the body not for an accessory in evil, but a friend, and, if necessary, to lay out one's life to some useful purpose.

" It must be plainly confessed that most are unhappy on this account, namely, that they live in dread of the possibility of misfortune, give up too readily to it when it occurs, and do not sufficiently notice its palliative circumstances.

" The full experience of happiness appears, to the anxious and timid mind, something so doubtful that they pray that it may not be sent.   They consider not that prosperity, that is, a wise self-confidence, awaits the bold.

" Regrets accompany most events : we smile at the devotee who lacerates himself amongst the tombs, and yet we ourselves weep over the experience which has been collected in the grave of the past.   As mendicants live by their sores, so we suck consolation out of our inward weakness.

" But help may be sought in a very different direction, by being strict in self-government, the master of our own house, and own person : *nunquam retrorsum,* that is to say, never gloomy.   Cheerfulness is to be sought in free intercourse with Nature, with men, or with books; and the purest enjoyment is preserved, like seed-corn in the earth, to spring up in gloomy weather.

" The saying that a man's stomach is his destiny is essentially true ; the best race-horses take the least food.   *Mors in olla* means, not death in the pot itself, not in its leaden or copper lining, but in its contents ; he who fills his stomach too full, must not wonder if sometimes his heart is full also.

" Physicians must perseveringly enforce a reasonable system of dietetics ; by this means they will not merely contribute to invigorate life, but to prolong it."— P. 38.

On the question of Dietetics, as suggested by Professor Marx, Dr. Mackness judiciously observes :—

" It is, we believe, a subject of immense importance in medical practice, and one which is far from receiving commensurate attention at the present time. Strict attention to dietetics has been one grand means by which empiricism has attained success—a success which has been favoured by a corresponding neglect on the part of established practitioners.   Hydropathy and Homœopathy owe much of their celebrity to this source, and whenever men of talent and judgment have condescended to avail themselves of this simple means, the results have been highly beneficial.   Our subject leads us rather to enquire what is the moral bearing of the question.   And here we think it distinctly the duty of the medical man to use all his influence with his patients to adopt and persevere in such

systems of diet as he may have reason to think will, in their particular cases, most tend to preserve the *mens sana in corpore sano*, not allowing them to suppose it is sufficient to do so during the period of sickness or convalescence, but habitually to look upon such care as a preventive of disease, and enforcing that view which Professor Marx takes, that it is a duty incumbent upon every one to take a rational care of his health, as the great means by which he may be enabled to perform efficiently those duties to which Providence has appointed him. Persons will often pay much attention to these views, when urged with all the weight of medical authority, who would laugh to scorn the very same opinions if proceeding from some judicious non-medical friend. Most persons desire health, and would make sacrifices to procure it; but many would submit more easily to severe remedies to remove disease than to a little habitual self-denial to preserve health, and the very simplicity of the means operates against their recognition. They cannot believe that a little indulgence in one thing one day, and in another at some other time, can do them any harm : and thus the medical man is often obliged to have recourse to strict and definite rules, rather than to lay down general principles."—P. 40.

We come now to the fourth and last character that we have selected: one, which the graces of benevolence, friendship, and charity will render very attractive.

JEAN NOEL HALLE was born at Paris on the 6th of January, 1755. In early life, he had the great advantage of the advice and instruction of his maternal uncle, Aimé Charles Lorry, one of the most distinguished and intelligent physicians in France at the close of the last century. He took his first degree in 1776, after displaying so much ability in his examination, that the founders of the Royal Society of Medicine requested him to be a companion of their labours, even before he had received his doctor's diploma.

"This precocious honour," remarks M. Cuvier in the *eloge* pronounced by him on the character of Hallé in the Institute of France, "afterwards prevented him from obtaining the title of Doctor Regent in the Faculty of Medicine. Fourcroy and several other men of first-rate talent suffered the same disgrace from the same cause. This puerile jealousy which had led the Faculty to regard the Royal Society of Medicine as a rival body, had also induced it to vow an implacable hatred to those of its own members who had consented to belong to it. When it is remembered what antipathies this jealousy excited amongst the physicians of the capital, and the ridiculous dissensions and odious satires it produced, it may give a favourable idea of the mildness of character and modesty of Monsieur Hallé, and also the regard which those qualities inspired, that while the highest reputations were not respected in the writings of the day, he was less vituperated than any of his associates. Elevated indeed beyond all intrigue, and only desirous of increasing his professional knowledge by all those aids of science which could assist him, and neither pluming himself upon the success of his discoveries, nor seeking popular applause, he neither wounded the vanity, nor alarmed the interest of any one. The study of medicine appeared to him quite sufficient to occupy the whole of life. In his view of the subject, there was nothing which could influence man morally or physically that did not belong to this noble science, and he therefore manifested so disinterested a feeling towards it, as to regard every means beneath his notice for obtaining public confidence, except such as were truly desirous of it. He was therefore continually to be found at the bed-side of the sick, watching the progress of disease, or in his own room, engaged in the study of practical medicine, chemistry, and even of political economy, as far as it related to the benefit of the different classes of

society. Nor did he neglect anatomy and physiology, but still regarding these sciences as subservient only in their relations to the health of men generally or of individuals."—P. 49.

He contributed several papers on Practical and Hygienic Medicine to the Memoirs of the Royal Society of Medicine. In 1784, he published an edition of Lorry's work, entitled "*De præcipuis morborum mutationibus et conversationibus ;*" and subsequently he edited the writings of Bordeu upon the glands and cellular tissue.

His disinterested humanity to the sick poor of Paris was so universally known that, when the National Convention ordered the nobles (and Hallé's father and grandfather, having each received the badge of St. Michael, were consequently considered as such) to quit the metropolis, he was of course included in the sentence, and was exempted from the penalty, only upon the ground of his being the kind-hearted physician of the destitute and afflicted. It was at this time too that he displayed so much heroism and generosity of friendship in aiding the escape of many who, from whatever cause, had fallen under the suspicion or displeasure of the existing government. " He penetrated into the prison of Malesherbes, giving him consolation, and receiving his last adieus. At the Lyceum of Arts he drew up the petition for the pardon of Lavoisier, and during the two years which may be called the age of misery and shame, he occupied himself assiduously in performing a thousand other services to the unfortunate, for doing which the principal condition he required was secrecy."

When Fourcroy in 1794–5 was called upon to re-organise the school of medicine in Paris, the chair of Physique Medicale and Hygiene was conferred upon Hallé ; and in the following year, on the establishment of the Institute of France, he was named a member of the department of medicine and surgery.

In 1806, Corvisart, who was entirely occupied with his duties as physician to Napoleon, chose him for his colleague at the College of France, and soon after gave up the post altogether to his care. This distinguished physician, when he bequeathed the portrait of Stolle to Hallé, said in his will that he left it to that physician whom he most esteemed.

Among his labours at the Society of Medicine, in whose welfare he continued to take an active interest, we may particularly mention his steady and zealous advocacy of Vaccination. He contributed much to its general introduction into France. Italy, too, owes to him a particular remembrance in this respect. He was employed in 1816 to introduce it into the states of Lucca and Tuscany, and his success in this mission tended to render his name very popular in those countries.

Hallé was a man of very great erudition, an admirable scholar, and deeply versed in most departments of physical science. In the practice of his profession, he was generous and liberal even to a fault. We have already had occasion to allude to his kindness and attention to the poor and suffering. Not content with being ever ready to aid them by his medical skill, he took pleasure in relieving from his own purse their wants and necessities. Many a person, who could not afford to pay, found, after his convalescence, that all the expenses occasioned by his illness had been defrayed, and only then by careful enquiry discovered that his physician had provided for all.

"Returning home," says his eloquent panegyrist, "at the close of the day, exhausted with fatigue, it was, perhaps, announced to him that a lady wished to consult him; he would desire his servant to advise her to go to one of his medical brethren, a message' is returned that she cannot do so, for she has nothing to pay him with; this is an appeal he cannot withstand. 'Oh, in this case, then,' replies he, 'I have no choice, I must attend to her.' His generosity was ever prominent; he invariably gave the entire profits of his works to the young persons who rendered him assistance in collecting materials for them. Having been charged with the task of editing a new pharmacopœia, he employed the sum which was allowed by government for this purpose in the completion of the hall of the Faculty of Medicine. Happy in the good that he did, happy in his success, happy in his family, M. Hallé seemed to possess what is beyond every other earthly blessing; his health was robust, and although occasionally troubled with a little fulness of blood, prompt bleeding immediately relieved him, but all at once he found himself suffering from stone in the bladder. Yet even in such painful circumstances, when most persons would have been only occupied about themselves, his unbounded charity was still active; before he underwent the operation of lithotomy, though suffering great pain, he yet went to see some poor persons whom he supported, fearing that his long absence might appear to them an act of forgetfulness."
—P. 56.

The operation was successfully performed; but a congestion of the lungs followed, which proved suddenly fatal on the 11th of February 1822. Hallé was 68 years of age at the period of his death.

The letter addressed to him by Professor Marx is one of the most beautiful in the series; alike felicitous in conception and graceful in expression. We cannot resist the pleasure of giving it entire.

"The history of your life, can well attest the sufferings which a medical man of fine feelings has to endure; and, therefore, I shall find indulgence, if I venture to impart to you some sentiments respecting the trying hours of our profession. No one will better understand me.

"It was but the painful sequel to a much tried life, when at the age of 68, shortly before your death, you submitted to the anguish of lithotomy, which nothing but the force of resignation could have enabled you to sustain with your habitual gentleness.

"To what extent you were the protector, the friend, and the helper of the poor, was shown in a time when a part of mankind had ceased to be human.

"It was yours to experience what it is to serve others with our whole soul, and yet to be misjudged by them, and then, as it were by the majesty of innocence, to compel esteem from the madman.

"The hound set on against his benefactor often recognises him in the moment of attack, and instead of tearing, covers him with caresses.

"In the tumult of unbridled passion, you were enabled to preserve calmness of mind for yourself and others.

"To you it was permitted to visit Malesherbes in his imprisonment, and to receive his farewell; you drew up the petition for Lavoisier.

"Could the stones of Paris speak, they would testify that you alone wiped away the tears of the sorrowing.

"Every project in medicine tending to the benefit of society might safely reckon on you as its patron and protector. How untiringly did you contribute to the read of Vaccination!

"You have kept no record of personal sacrifices and thanks received; where the it lay it is easy to divine.

"You acted benevolently with a full participating heart; you were rather surl when in any case gratitude followed, than shocked when it was wanting.

" Franklin relates that he lent a sum of money, and when the debtor would have returned it to him, he requested him to lend it to some other person in similar need, and so on continually. Thus did you consider property as a deposit —a debt to be discharged.

" But if the physician works with his mind as Fenelon teaches that men ought generally to work, is it not true that the burden of the profession, or rather the addition of selfishness, often presses like lead on his heart?

" Those who are conversant only with business or mechanical employments, can scarcely imagine what a heavy heart the medical man takes with him out of the house of death.

" There are indeed physicians who look upon disease and death merely in the abstract, and who would seem to have to do not with the *sick* but with *sickness*, not with the *dying* but with *death*, who practice *lege artis*, and content themselves with common-place morality; with such I shall not trouble you.

" Neither does death awake any overwhelming compassion in cases where the cessation of suffering appears as a benefit.

" In such instances, sickness deals with the invalid as a gardener does with a tree which he wishes to transplant, and whose roots he therefore carefully loosens from the soil. The separation from their accustomed habits and relations takes place then so gradually that it comes to be considered like the natural result of pre- ceding changes.

" But how is it when a dangerous illness falls like a rocket into the house, and now none but the physician can save? when the life sinks, not gradually and gently like the fluttering of a leaf before it falls from the tree, or the stopping of a watch, but when Nature, like a tragedian, seems to have compressed the most affecting scenes into the last act?

" Exhausted returns the medical man to his house, solacing himself with the hope of forgetting the toils of the day, and renewing his strength in refreshing sleep; when lo! at midnight he is summoned to a child who is dying of croup. The parents welcome him as an angel from heaven; it is the first time for days that they have attended to any one but their own child; they hang breathless on his expressions; they scan his features to extract from them his thoughts; they draw hope from every question, every direction, every gesture; the mother smiles at him in half-desponding thanks because the child is quiet; the father in emo- tion grasps him by the hand; but the quiet is of short duration, the child can cough no more, it bends its head backwards, it stretches out its limbs convulsively to breathe—in vain, it expires.

" Who else is now the companion to the physician besides the groaning lamenta- tions of the stricken parents?

" Should he hereafter lose a friend, one perhaps on whom he has cheerfully ex- pended years of toil, self-denial, self-sacrifice, where can he turn for pity?

" From the furnace of his anxieties he is followed by the sighs only of those who intimately share them; few concern themselves about him, who is nevertheless harassed and worn down by his efforts to assuage the woes of others.

" Another practitioner goes with a heart oppressed with grief to his chamber; he is immediately called to a woman in labour, and compelled to perform the opera- tion of craniotomy.

" Nor is it enough that in critical and decisive moments he draws, like the orphan boy in a lottery, he knows not whether a prize or a blank; that, like a swimmer, he has to struggle with the apparent dead; that, like a father confessor, he has to speak consolation at the very gallows—no, he must pass the ordeal of ignorant and perverted judgments. In thus running the gauntlet of reproaches on the one hand, and envious joy on the other, he must sustain himself by his con- scious innocence, as men who are undergoing operations or suffering pain bite a bullet to prevent them crying out.

" For the dying there is an Euthanasia, for the mourner a visit of condolence

but who concerns himself about the suffering physician? And yet he has most frequently to experience that in bereavements the tears of survivors become like aquafortis to his soul, and that powerlessness to save others curdles as it were his own blood.

"But I hear you exclaim, ' O desine renovare dolores !' and therefore I will cease to complain, and solace myself with the hope, that as in other respects there have been improvements in the condition of the medical man, so there will be also in regard to consideration shown to their feelings.

"He who has read the letters of Zimmermann which appeared after his death, will remember that medical attendants in noble houses were formerly accommodated with a *seat* but not with a *chair*, and that domestic physicians were permitted to use riding horses but not leather bridles.

"There is no word of more frequent recurrence in Japan than 'Patience!' Golownin's journey and the narrative of his captivity in that country suffices to teach the European physician contentment. You indeed practised patience and resignation so thoroughly, that you may justly claim the palm of victory."—P. 61.

The remarks of Dr. Mackness upon this admirable letter are worthy indeed of his theme :—

"The trials (of medical men) here described, may be chiefly classed under two heads—the *sorrows of sympathy* and the *sorrows of isolation*.

"The first of these, the *sorrows of sympathy*, especially pertain to the medical profession, and woe to him who enters into it without a full appreciation of his requirements in this respect, for his duty and conduct will then be full of inconsistencies. A medical man, more than any other individual, is called to drop in the words of consolation in the hour of trouble, for to him only is often confided the heart-sorrows of his fellow-creatures. What is a medical man worth who has no feeling for his patients, or who looks upon them merely as puppets, by working with which he is able to make up a certain amount of income! who has not a deep sense of the solemn responsibility of being, to some extent, the guardian of the lives and health, those dearest earthly blessings which constitute the happiness of his fellow-creatures, who is incapable of tasting the sweet pleasure of bringing ease to the sufferer—hope to the drooping—health to those who, without his aid, would sink under disease !"—P. 62.

After showing that nothing save "high moral and religious principles of action" can sustain and direct the physician in the many and varied trials which his mission necessarily imposes upon him, and quoting a very beautiful passage from the correspondence of Dr. Lettsom, Dr. Mackness vindicates, with much good feeling, the character of the medical profession in point of disinterested humanity to the suffering poor.

"Who is first appealed to by the destitute in the hour of nature's suffering? Nay, who is most ready to attend on such occasions? It is the medical man. Wherever human misery exists, wherever pain is endured, in the lowest hovels of the poor, where disease and death, contagion with all that is offensive to the outward senses are present, there will be found the medical man, alleviating pain, soothing the sorrowful, smoothing the pillow of death, and offering consolation to the survivors; and often all this without the slightest expectation of reward. No class of the community, not even the ministers of religion, are called to make such immense personal sacrifices as medical men; nor is any class so little appreciated for their humanity and generous disinterestedness, at least by the public generally."—P. 65.

Often indeed are his services, even when most harassing, not known; and, when known, not appreciated or even admitted. No one, therefore,

has so much need as a medical man of looking for his recompense in the secret approval of his own conscience, and of Him who is greater than his conscience, and knoweth all things.

So much for the *sorrows of sympathy;* let us now see what Dr. M. has to say touching the *sorrows of isolation.* The following passage will show his sentiments upon this subject.

"The other trials of feeling mentioned, peculiar to a medical man, seem to arise out of his isolated position. Few but those of his own profession can enter into his feelings, or sympathise with them, and when sickness comes near himself or his family, he has, less than others, the comfort of hope. He is so conversant with every symptom, every ailment, that his mind is apt to get into a morbid state through his very familiarity with disease, and hence it has often been remarked that medical men are bad patients. If it be, indeed, the fact that medical men receive less of general sympathy in the domestic and personal trials which befall them, it may, perhaps, arise from this, that they are supposed to be so sufficient for themselves that sympathy is deemed almost impertinent. Another and a sadder cause, when sickness befalls them in their own persons, is, that they are compelled to conceal it as much and as long as possible, lest they should be deemed unfit for their duties. There is, indeed, a sad want of gratitude and generous feeling sometimes displayed in this respect. On the first indication that a medical man's health is failing, persons will begin to relax in their adherence to him, and to look about for some new candidate, when a little patience and forbearance on their part might enable him, who has, perhaps, many a time stood beside their couch of suffering, to regain his exhausted strength, and preserve his position. A beautiful instance of consideration and kindness is mentioned in the life of the late excellent, and noble-minded Dr. Arnold, when he was attacked by the fatal seizure which deprived, in so brief a space, our country and church of one of their brightest ornaments; he objected to his wife's wish immediately to summon medical aid, that the hour was early, and that he did not like to disturb Mr. Bucknell who had been recently ill. We are far, however, from believing that such instances are singular."—P. 69.

With respect to the last sort of trial to which medical men, more than any other persons, are exposed, viz. hasty and unfair censure, we have already seen how such men as Boerhaave and Cheyne felt and acted when calumniated or unjustly accused. Whoever has the "mens sibi conscia recti" within, need not fear the shafts of envy or malice. It will never do for a medical man, if he seeks to enjoy peace and comfort at home, to think much of all the ill-natured remarks, evil speakings or insinuations to which he may be exposed abroad, whether from patients or from his professional brethren. There is a way by which he can "make even his enemies to be at peace with him." We quite agree with Dr. Mackness, that the practice of the late amiable Dr. Hope—that of taking notes of every little circumstance which he thought capable of misconstruction, and obtaining the signatures of witnesses to vouch for their accuracy—is one not to be commended or imitated, at least as a general rule. It seems to indicate too little trust in the force of truth, and in the majesty of innocence. A much wiser and better advice is that of Dr. Mackness : "be patient under the trial, knowing that merit always outlives calumny, and strive, by cultivating the highest motives, to live above unjust censure."

And now we must quit the pleasant company of Professor Marx and his worthy translator; trusting, however, that, ere long, we shall have again to welcome their labours in the same agreeable path of authorship.

Had our limits permitted, it was our intention to have borrowed more largely from the pages of the "Life of Dr. Cheyne." Altogether, it is one of the most interesting—aye, too, and instructive—specimens of medical biography which we have met with for a long time. It forms one of a series in the course of issue under the editorial superintendence, we understand, of Dr. Greenhill of Oxford, so favourably known to the profession by his admirable edition of Sydenham's works, and by the discovery and publication of the "Anecdota Sydenhamiana." Already the lives of Sir James Stonehouse, Dr. Burder,* and Cheyne have appeared; and we are promised those of Boerhaave, Haller, Hey, Abercrombie and others, who have adorned our ranks by the moral graces, as well as by the intellectual excellencies, of their character. 'Tis a pleasing sign to observe a taste for professional biography springing up in our literature; few things are better calculated to keep alive a spirit of sound and healthy feeling among us than the occasional retrospect of the lives of the great and good. It is therefore with true pleasure that we find that the editor of our very talented cotemporary, the Dublin Medical Review, has commenced a series of sketches of the more distinguished of his countrymen. The Memoir of Dr. Mosse—the founder of that noble institution, the Dublin Lying-in Hospital—in the number for last November, is full of interest. What an example of intrepid unwearying philanthropy does it unfold!

I. Practical Remarks on Near-Sight, Aged-Sight, and Impaired Vision. With Observations on the Use of Glasses and on Artificial Light. By *William White Cooper.* 8vo. pp. 216. Churchill, 1846.

II. A Manual of the Diseases of the Eye. By *S. Littel,* Junr. M.D. 2nd Edition, 8vo. pp. 360. Philadelphia, 1846.

III. Annales d'Oculistique. Tom. XIII.—XVI. Paris, 1845–6.

Among the inconveniences of the practice we have so frequently censured of addressing the public and the profession simultaneously, is the pecuniary grievance, which, although slight in importance compared to the other evils, is yet worth notice. Why should the educated medical reader pay for the paper and print wasted in endeavouring to instruct the non-professional peruser in the A, B, C of medical science; and why is the latter to be mulcted for the information offered to the former, which can be of no

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* There is much, in the memoirs of this very estimable man, to awaken a medical practitioner to a proper sense of the duties of his responsible calling. We would specially direct the attention of the reader to the "Letters from a Senior to a Junior Physician" (which have already appeared in the Life of Dr. Hope), and also to the admirable letter of the late Dr. Abercrombie—whose praise is on every one's lips—to Mrs. Burder on the death of her husband.

service, or may prove prejudicial to himself ?   Even Mr. Cooper's little work illustrates this on a small scale ; for in it we find an account of the laws of optics and of the anatomy and physiology of the eye, which any tyro would be ashamed to confess he stood in need of; and a description of the treatment of ophthalmia and incipient amaurosis which the non-professional reader could not comprehend, nor would be benefited by comprehending.   As respects the professional reader, we do not find that Mr. Cooper supplies him with much information additional to that which was already accessible to him in works upon optics and ophthalmology, and we scarcely think the parcelling out small portions of large subjects into separate treatises, unless novel views or extensive series of facts are to be adduced, a useful practice.   Still, the work is written in a lucid and interesting manner, and will be found useful to those who have not hitherto turned their attention to the important subject upon which he treats. And what more important matter can engage the attention of the practitioner than the *preservation of sight* ?   Yet the subject has been unduly neglected by the profession, and either left to Nature's uncertain ministrations, or consigned to the care of quacks, oculists, or opticians.   So strongly has M. *Sichel*, of Paris, felt this to be the case, that he has, for some time past, devoted a clinical lecture weekly to the consideration of all that relates to spectacles.   Some of these are now publishing in the periodical whose title we have quoted at the head of this article, as a series of papers upon " *Spectacles and the pathological conditions consequent upon their injudicious employment.*"   They are of an interesting and important character, and we proceed to lay before our readers the substance of some of them.

Accommodation of the Eye to different Distances.—The point of distinct vision, M. Sichel observes, varies much in different persons, as also does the space through which it continues in operation.   The less an individual has been compelled by the nature of his occupations to constantly limit himself to one visual distance, and the more he has been in the habit of alternately exercising his eyes on near and distant objects, the more considerable will the extreme limits of his sight be.   Those who have much varied the distances in this way can discern near objects as distinctly as the myop, and distant ones as well as the presbyop.   The notable diminution or complete loss of the power of accommodation is the cause of the extreme conditions of myopia and presbyopia, and of the ill-consequences which follow the injurious use of spectacles.

On Spectacles.—Glasses of 48 inches focus are those of the lowest power ground for the presbyopic eye in London ; and, until the last few years, the same was the case in Paris, when M. Sichel introduced those of 72, 80, and even 96 inch focus—the last being little else than a plane surface.   The opticians at first ridiculed the employment of glasses of so low a power, but they have since admitted their great utility under various circumstances.   Spectacles are often made oval and small, for the sake of neatness, M. Sichel recommends their glasses being round and large, so as to cover not only the eye but its immediate vicinity.   This is especially necessary for the coloured preservers intended to mitigate the effects

of the impression of light in various affections of the eye; for otherwise the light is reflected at the sides, and the centre alone being protected, the very contrast increases the injurious effect. So, too, when even colourless glasses are employed, if they are small and oval, an irregularity of refraction takes place which may cause much confusion of vision and even diplopia. Care must be taken in fitting and wearing the spectacles, so as to prevent their falling forwards on the nose, and giving rise to a different degree of refraction. They should be as close to the eye as possible, but not so close as to allow the eyelashes or other appendages to touch the glasses. Upon this subject Mr. Cooper offers a useful caution.

"There is one point of considerable importance, which is seldom regarded, viz. the fitting of the spectacle frame, so that the centre of each glass shall be exactly opposite the pupil of the corresponding eye. There are scarcely two persons of precisely the same width between the eyes, and yet in the majority of cases this fact is entirely lost sight of in the selection of spectacles. A person finds that when, at an optician's, he looks through a lens of a certain power, it suits him exactly. He sees delightfully with it, and forthwith orders spectacles of that power. He tries them on as soon as he receives them, anticipating with eagerness the comfort they will afford him; instead of which he finds he can hardly see at all, or, if he does, his eyes soon feel fatigued. The glasses are right, the error is in the frame. Unless the width between the eyes is such, that the centre of each glass is exactly in front of the eye which it is to assist, the rays that pass through the lens will not all enter the pupil, and the spectacles will be comparatively valueless. Care should be taken then, in every case, to have the bridge made of such a curve, and such a width, that the position of the lenses as regards the eyes shall be perfect, both horizontally and vertically."—P. 125.

Mr. Cooper also thus expresses his opinion upon the substitutes for spectacles.

"Some persons prefer to use an eye-glass, others reading-glasses, in lieu of spectacles. Reading-glasses, however, are objectionable, from their not being firmly fixed in front of the eyes. The motion of the head not being in accordance with that of the hand which holds the glasses, has the effect of trying the eyes exceedingly in their constant and ineffectual endeavour to adjust themselves to the position of the glasses, inducing unnecessary fatigue to the eyes, and rendering necessary an earlier resort to glasses of a higher power than would have been required had proper spectacles been adopted from the commencement.

"But a single eye-glass is more injurious still; and many young men, who, from shortness of sight, or a singular vanity, have thought proper to use a quizzing-glass, have had reason to regret it to the end of their lives. The consequences to perfect vision are serious, for as one eye is made to do more work than the other, an alteration in their relative strength takes place; the result is, that sooner or later, when the person resorts to spectacles, he finds that the lens which suits one eye will not at all suffice for the other. Watch-makers, and other artists, who work with a magnifier, are very subject to this imperfection of vision, and generally find that they see better with one eye than the other. If, instead of always applying the magnifying-glass to one eye, they were to use the other eye in turn, a habit which might easily be acquired in early life, although with difficulty afterwards, they would preserve the power of their eyes more equally, and the perfection of vision longer; for, by using the eyes alternately, rest, and an opportunity of recovering from the fatigue produced by the exertion of looking through the magnifier, would be afforded to each. In like manner, those who indulge in microscopical or astronomical pursuits, should

learn to use either eye indifferently, instead of always trusting to one, although we almost instinctively apply the right eye to a telescope or microscope."—P. 118.

Presbyopia—Far-Sightedness—Aged-sight.

Although the name of this condition of the eye is (πρεσ6υς, old) signi-ficative of the fact of its usually forming one of the first indications of the approach of age, it is by no means confined to any period of life—many eyes being originally presbyopic as others are myopic. We need not give the general description of the symptoms of the condition as furnish-ed by M. Sichel and Mr. Cooper, nor the marks distinguishing it from cataract and amaurosis set down by the latter; merely observing, in re-spect to these last, that we are surprised Mr. Cooper dwells upon the diagnostic signs derived from general symptoms, when so simple a one as the trial of the effect of a convex lens would, in the majority of cases, dis-sipate all doubts. M. Sichel has some valuable observations upon this affection. He dwells much upon the *hygienic precautions necessary* to be observed by the presbyop. Thus, when engaged in writing, reading, or minute occupations of any kind, he should always *place the object as dis-tantly as possible from his eyes*, consistently with distinct vision. Having by experiment ascertained what this point really is, he should in future, during all assiduous labours, carefully observe it. In less trying occupa-tions he may exercise his eyes at less distances, so as to accustom them to perceive within their normal focus. In both cases, he must from time to time *interrupt his labours, and direct his eyes to the most distant objects within the sphere of his vision.* After five or six minutes' intense exertion of the eyes on minute objects, he should cast them towards the walls of the apartment or out of the window. An interruption of this kind of only a few seconds preserves the power of accommodation of the eye, and prevents the enfeeblement of the sight; and in this way M. Sichel has repeatedly seen a commencing amblyopia dissipated. The interruption is very slight, and by habit becomes almost imperceptible. The more closely these directions are observed, the longer will the eyes be preserved with-out the necessity of resorting to glasses; and the minuter the occupation the more necessary are the precautions. If possible, people who are presbyopic should not choose occupations necessitating an exertion of the eyes on minute objects; and many dress-makers, shoe-makers, tailors, &c., would do much better as domestic servants. M. Sichel particularly alludes to the injury which is inflicted upon the eyes of *children* by allow-ing them to bend over their tasks, so as to bring their eyes close to the written characters, instead of obliging them to hold themselves erect, taking care that the letters of the words are sufficiently large for them.

Degree of Light required in Presbyopia.—For the purpose of exact vision, and especially for near objects, the presbyopic eye requires a bright light, so that half-lit apartments are very injurious to it. Lamps furnish a much better and more equable light than candles. Coloured glasses, which have been erroneously termed "*preservers*," should only be em-ployed when the eye is temporarily exposed to the reflection of some ex-ceedingly vivid light. In other circumstances they are very hurtful, by accustoming the eye to artificial darkness, and covering everything with

a blackish tint, which prevents objects being accurately distinguished without effort. In this way, amblyopia and photophobia may be induced; and many such cases have been promptly relieved by the prompt removal of the patient from an obscurity to which he had been erroneously consigned. When exposed to very bright reflection, glasses of a light greyish-blue are the most suitable.

Glasses in Presbyopia.—It is usually about 40 that the presbyopic eye requires the aid of spectacles. While the sight for distant objects may be even improved, that for near ones, especially if not well lighted, or removed to a distance, becomes impaired. The fixing the eye is likewise painful and fatiguing, and if the irritation go on, it may lead to amblyopia. Before symptoms reach this point we must have resort to glasses, employing them at first only during artificial light or minute occupations. The rules before-mentioned are still to be observed, and especially that of holding objects as distantly as possible from the eyes consistently with distinct vision. In respect to the number of the glass which should be commenced with, it is an error to suppose that this is always the same for the same age, and opticians generally recommend a far too high power, and increase this far too suddenly. Even excellent writers upon affections of the eyes fall into the same error ; and thus Mackenzie recommends a 36-inch focus for persons of 40 years of age, and a 30 for those of 45. As the result of numerous experiments, M. Sichel commences with a 72-inch, which in general answers very well for persons who have not yet employed glasses, and who have not delayed resorting to them too long. Frequently, however, and especially in persons younger than 40, 80-inch or 96-inch answer excellently for a long period. In trying spectacles we should be able to discover objects distinctly (but not magnified) at a little less distance than we see them imperfectly without them. All glasses, more or less, destroy the accommodating power of the eye, and that in proportion as they are strong ; so that we must be content with a power just sufficient, increase it only by almost insensible gradations, and from time to time dispense with it and fix the eye on some distant object, and even occasionally employ the unassisted eye for a short time on minute objects held at a distance. In the earliest transitions of size the actual differences are very slight, as from 96 to 84 and 72-inch ; but, as we descend, these become more marked, and to prevent their being too abrupt, M. S. employs 66 and 54-inch, recommending the patient to retain each glass as long as possible, and decrease it only six inches at a time. It is an error to say that a change of glasses is *always* necessary. It often becomes so only because too high numbers have been begun with, and cautions neglected ; so that, when we hear a patient complain of his glasses being ineffectual, we must examine whether he has not originally used too powerful ones, and thus induced amblyopia. By employing this slowly graduated scale, M. S. rarely finds a lower number than 48 required ; while, when 48 is begun with, a lower one than 36 never succeeds. In very young persons, or where amblyopia complicates the presbyopia, we should never commence with lower than 96, and keep at 80 as long as possible.

On Amblyopia (Defective Vision) produced in Presbyopia by the too

assiduous Employment of the Naked Eye.—If a presbyop continues to employ his eyes injudiciously, a condition very difficult to distinguish from incipient amaurosis may be produced. This is *presbyopia amblyopia*, or amblyopia resulting from presbyopia. The visual disturbance is very great, especially with artificial light or in obscure places, and is characterised by its disappearance under the use of convex glasses. If neglected, an asthenic form of amaurosis results. This species of amblyopia is especially found in engravers, miniature-painters, watch-makers, literary men, dress-makers, &c.; and more particularly in those persons who, having lived in the country, and been accustomed to long sight, afterwards have their eyes suddenly employed on minute objects. It is likewise especially found in those in whom a constitutional debility of the retina is conjoined to presbyopia. In presbyopia, amblyopia is generally the effect of excessive exertion of the eye, while in myopia it usually results from constitutional causes, such as cerebro-ocular congestion, abdominal plethora, &c. This condition has been described by various authors under different names (by Mackenzie, as Asthænopia or weakness of sight), but its true nature has not been appreciated by them, in consequence of the presbyopia having been overlooked.

In treating this affection, M. Sichel recommends total or partial abstinence from minute employment, or, at all events, its interruption from every two to ten minutes, according to the gravity of the case, in order that the eyes may be directed to distant objects—applying to them also spirituous, or, if the case is old, stimulating lotions. In this last circumstance, too, blistering the brow and temples, and the use of convex glasses, are indicated. Even when amaurosis has commenced, these measures will usually triumph over it, employing in this case therapeutical means more energetically and glasses more sparingly. As to these last, when the eyes have been sufficiently rested from employment and amelioration has commenced, we may allow the patient several times a day to employ, for a few minutes, glasses strong enough to admit of reading without any fatigue, or without the necessity of looking too close. As the case improves, their refractive power may be diminished.

We may here cite a case of *temporary presbyopia* quoted by Mr. Cooper.

" On the 17th of April 1840, a boy, eleven years of age, was brought to Edinburgh from the country for the opinion of the late Dr. James Hunter. Fifteen days previously he was at school in perfect health, when one evening the discovery was made that he could not read common type, nor distinguish accurately any very small or near object. There was neither pain nor symptom of disease in either eye, but the vision of each was equally affected. The general health of the lad was unimpaired, and he had not received any injury either of the eyes or any other part. During the two following days the sight became worse, but after that it had remained stationary. Excepting the administration of some purgatives no treatment had been adopted. Previous to the attack his sight had been extremely good, and he had not been troubled with worms or other ailment since infancy. The eyes, upon examination, appeared perfectly healthy, and the only complaint made was the inability to read common print, or to see minute or near objects ; distant objects, he thought, were as distinct as ever (although it was subsequently ascertained that his distant vision was slightly affected). Large type was best seen at 11 inches from the eye ; small print could not be read at all; distant objects were ascertained pretty accurately; and the power of the two

eyes seemed equal. Concave glasses rendered his sight much less distinct, convex glasses improved it much. Dr. Hunter strictly prohibited the use of spectacles, and prescribed a combination of anthelmintic and tonic treatment, with spare diet and plenty of exercise in the open air. No worms made their appearance. The presbyopia continued until the end of May, when an amendment was perceived which increased daily, and in about ten days the sight was perfectly restored." P. 89.

The Employment of Glasses in Amaurosis.—Charlatans have long been in the habit of employing convex glasses in amaurosis, and those practitioners who have followed their example have explained the occasional benefit thence resulting by the excitement of an asthænic retina ; but, according to M. Sichel's views, they are only useful when the amaurosis has followed presbyopia. In these cases, even, very convex glasses should not be employed before fully trying the effect of feebler ones. He has long been aware of the modifications which the difference in the length of normal vision impresses on the symptoms. Thus, in the condition of amblyopia from presbyopia, slightly voluminous objects are best seen when held at more or less distance—the sight at a distance remaining good although impaired for near objects. In such cases, sight is notably improved by convex glasses. After a long period, however, when the patient's sight becomes shortened to a great extent, glasses are of no use, and the amaurosis is incurable. In myopia the sight, while enfeebling also at a far earlier period, becomes shorter, and convex glasses do not facilitate vision, unless placed very near the eye so as to act as magnifying-glasses, at the same time stimulating, and eventually injuring the retina. Thus, we would expect, as in fact is the case, that, in amaurosis from presbyopia, glasses would prove useful, and the more so as its origin is local—*i. e.* produced by fatigue of the organ of vision. Hence they frequently prove of service both in the treatment and the diagnosis of the affection. Strong glasses must not be employed if the case is not a very old one, the presbyopia excessive, the foci of the eyes unequal, or the patient unable to suspend his occupations. It is doubtful if any case of cure of myopia by these means has ever occurred.

There is a variety of *presbyotic amblyopia*, however, from which patients derive no benefit from glasses, and on enquiry such persons will have been found to have employed their unprotected eyes long after defective vision had manifested itself. The eye has thus been forced to accommodate itself to minute objects until positively unable to continue to do so. In this case the retina must be allowed to recover itself by repose, and by frequent exercise on large and distant objects, after which the 96-inch focus may be employed. Often, however, stronger glasses will be required, the patient by exertion of the unassisted eye having contracted an *acquired myopia*. Although this form of amblyopia is usually of slow occurrence, it occasionally comes on rapidly, if the eyes are sedulously employed upon smaller objects than they are accustomed to. This is the case with some children who are too early employed in reading, sewing, &c. Presbyopic amblyopia generally occurs without complications, but it may exist in conjunction with cerebro-ocular congestion, dysmenorrhœa, constipation, &c.—conditions which much favour the occurrence of amblyopia in presbyopia. These complications must be removed before recurrence is had to glasses

or local stimuli. It may also be associated with various other diseased conditions of the eye, often rendering their diagnosis very obscure. The complication of presbyopia with conjunctivitis has frequently given rise to, the supposition of an amblyopia which has had no existence in fact.

Some of the Consequences of Presbyopia.—Among these M. Sichel mentions (1) *Ocular Neuralgia* as of frequent occurrence. At first occuring only after long exertion of the eyes, it eventually comes on as soon as this is commenced. Any exertion whatever indeed of the eye induces pain, and this may occur when it is quite at rest; and the affection may become complicated with rheumatism or cerebro-ocular congestion. At an early stage, rest and appropriate glasses suffice for the treatment Later, absolute rest is essential, opiates being given internally or veratria applied to the brow—the complications being properly regarded. But all measures are useless unless first absolute rest, and then only the gradual use of the eye, be observed. Both eyes are usually affected, and, when this is not the case, we should examine them and see whether the affection do not arise from their foci being unequal. In rare instances it is induced by the use of strong glasses.

(2), *Mydriodapsia, or Muscæ Volitantes.*—These almost always arise from a rash use of the organ. In presbyopia they are found when the naked eye is used, or when one eye is fatigued by an inequality of focus. Common as is this affection from the abuse of glasses in myopia, it is rarely produced by the use of convex glasses in presbyopia. The muscæ volitantes must, in regard to prognosis, be carefully distinguished from the fixed darkened spot called *scotoma*, the sure forerunner of amaurosis.

(3), *On acquired Myopia, or Presbyopia converted into Myopia.*—As the presbyop can only apply his eye in working by forcibly subjecting it to a too short focal distance, we can easily see how assiduous labour under these circumstances may eventually destroy the accommodating power of the eye for the observation of distant objects, and so shorten the focal distance as to induce a *secondary myopia.* The continuance of such employment tends only to increase it, to which other circumstances also sometimes contribute. Thus, in ignorance of the determining cause, to relieve his uneasiness during the employment of the eye, the person may be recommended to use a concave glass, which only aggravates his condition. We may observe acquired myopia in its *simple form;* unaccompanied by any weakness of vision—the person having become myopic from the mere exertion of his eyes. This affection comes on slowly, and is rather found in persons who have acquired the bad habit of placing objects too near their eyes, especially by stooping at their work, than in those who have too much employed them. The majority of myopiæ are so induced. In this simple form the organ of vision is perfect, providing the object be placed at an appropriate distance. When it is not of long-standing, it suffices to gradually increase the distance of the objects from the eyes, and exercises these upon distant ones at frequently-recurring intervals. The use of concave glasses is to be rigorously prohibited; nor should convex ones be employed when there is no complication of amblyopia, the original presbyopia is not excessive, or the

individual still young. This variety of myopia offers an explanation of the curious phenomenon mentioned by most authors as occasionally occurring, the *spontaneous return of the power of working without the use of convex glasses.* But the acquired myopia may be *complicated with amblyopia.* The amblyopia in these cases is generally asthænic, although it is sometimes attended with cerebro-ocular congestion. The treatment, as in all cases wherein amblyopia is present, is difficult, and there is always danger of the affection becoming converted into permanent amaurosis. Absolute rest from occupations, with exercise of the eye on long distances in the open air, are indicated—the accompanying congestion or other diseased conditions being removed by appropriate means. All glasses must be interdicted. The amblyopia may in this way be removed even when approaching to amaurosis; but the myopia remains, diminished however, in proportion to the docility and the perseverance of the patient. At this period, the cautious use of convex glasses may be allowed during a portion of the day.

We may quote some of Mr. Cooper's remarks upon the *Preservation of the Eyes.*

" Those whom circumstances compel to study in the evening, should select that kind of work which is least distressing to the eyes. They should especially avoid indistinct writing or small print. The 'Diamond Editions,' in which the print is extremely small, are very hurtful to the eyes. I have a volume of Burns' Poems thus printed, and if 1 attempt to read it, my eyes feel strained, and the appearance of muscæ volitantes is excited before I have perused half a page. Reading by fire-light, or simply gazing at the fire, when sitting alone, or in a contemplative mood, is highly injurious to feeble eyes, and should be avoided by all. It is not advisable to read by twilight : too little light is as pernicious as too much, yet many persons will, evening after evening, try their eyes in this way rather than burn a candle. It is injurious to the eyes to be long exposed to the reflection of a strong light, whether artificial or natural, such as the reflected sun-shine from the page of a book.   *   *   *   *   *   *   *   *
*   *   *   In reading and writing, just that amount and quantity of light, whether natural or artificial, should be allowed, which, while it thoroughly illuminates the object, feels grateful and pleasant to the eyes. This desideratum can never be attained without due regard to the position of the light. The light cast upon a book while the candle is in front, is by no means pleasant, and the glare of the flame is very trying to weak eyes. It will be found that, if the candle or lamp be placed behind the reader, a little elevated and slightly on one side, the pleasantest and least injurious effect is produced ; for the light then reflected to the eyes is less distressing, and at the same time the eyes are perfectly protected from the heat and glare of the flame. It would be well if in our public buildings more attention were paid to the position of the lights : it is very distressing to sit in a gallery immediately opposite the glare of a gas-burner or lamp, for an hour or more ; the eyes frequently do not recover from the irritation thus excited for several days. Not only might the evil be easily removed by employing lights of greater power and placed nearer the ceiling, but there would be a great advantage gained from the increased purity of the air.   *   *
*   *   *   *   *   *   * It cannot be too strongly urged upon any one about to use spectacles for the first time, that that power which will enable him to read without much exertion by candle-light, is the only power suitable for him. It is by candle-light only he should use glasses at first, and so soon as he finds that he stands in need of glasses by day as well as by candle-light, and the glasses he uses no longer afford him sufficient assistance by candle-light, it will be proper to use the next power for the evening, but the evening only, and to allow himself the use of the others—and their use

only—during the day.   The greatest caution as to increasing the power of glasses should be observed, for persons who change their glasses unnecessarily, increasing the power each time, are exhausting the resources of art instead of economising them as much as possible. Optical aid can only be extended to a certain point, and the steps to that point should be as slow and as numerous as possible. By exercising prudent precautions, persons may often attain great age, and yet never require the aid of glasses beyond a very moderate power; others on the contrary, who from ignorance frequently increase the power of their glasses, may run through the whole assortment, and leave themselves only the most inconvenient resources to fall back upon—viz. the very highest powers.—Pp. 100-107.

This is very sound advice, and if more generally followed, would prevent much disappointment and vexation. It is precisely in accordance with that so emphatically reiterated by M. Sichel, but Mr. Cooper recommends a power (48 inches focus) which the former practitioner regards as far too high to commence with, and an augmentation of it, which he looks upon as not sufficiently gradual. We think the low powers recommended by M. Sichel from their conservative tendency are well worthy a trial.   They are to be found in the opticians' shops of Paris, and would be soon procurable in London if sought for.

Myopia—Shortsightedness—Near-sight.—This subject will not occupy us long, as M. Sichel's observations upon it have not yet been published, and those of Mr. Cooper do not possess much novelty.   He describes two varieties of the affection—1, that resulting from a too convex state of the cornea or lens, the too great distance between the cornea and the retina, or an undue density of the media.   Any of these causes unduly increase the refracting power of the organ, and bring the rays to a focus before they can reach the retina. 2. Myopia resulting from the loss of the adjusting power of the eye.

Myopia from structural peculiarity is often discovered only by accident, a person casually observing the improved vision which is produced by his looking through a concave glass.   Short-sighted persons also see better by holding objects very near their eyes, in consequence of the divergency of the rays which is thus produced and the greater distance backwards at which the image is formed.

" Distant objects appear large to near-sighted persons, because a distinct picture is formed only at the point of intersection of the rays proceeding from an object and as this point falls short of the retina in these persons, the retina receives the rays beyond the point of intersection, and consequently where they are more extended.   Near-sighted individuals often write a very small hand ; the proximity of the letters to the eyes increasing the visual angle subtended by them, and causing them to appear distinct enough.   If a near-sighted person looks through a pinhole in a card, he can distinguish objects clearly at a greater distance than before ; this is effected by excluding the circumferential rays, which by their too speedy conveyance, would tend to form foci *before* they reach the retina, and thus cause indistinctness of vision.   The pupils of the eyes of myopic persons are generally large, and their habit of half closing the lids when looking at distant objects is upon the same principle, that is, for the purpose of excluding all but the central and direct rays."—P. 45.

Myopia may result from disease, as *Hydrophthalmia*, which is especially liable to occur in strumous children from inflammation of the cornea or of

the aqueous membrane. After the acute stage has subsided, the anterior chamber is observed enormously enlarged, the cornea protuberant, and the iris carried backwards and apparently concave. " In some cases there does not appear to be much alteration in the form of the cornea ; it appears thinner, but does not assume the pointed form characteristic of conical cornea. The extra prominence is general." There is more affection of vision than the altered form of the cornea will explain, the retina being usually more or less impaired in its functions. The early stage of *Conical Cornea* may be mistaken for a mere myopic condition of the eye ; and Mr. Cooper has met with a case of *Congenital Cataract* that was for many years treated as aggravated myopia.

Mr. Cooper cautions the myopic patient not to increase the power of his concave spectacles too rapidly, or to wear them constantly. He quotes Dr. Kitchener's excellent remarks upon this subject; and those of our readers who have not seen this eccentric but clever author's work, " The Economy of the Eyes," will do well to peruse it, containing as it does much valuable information, interlarded though this be with all kinds of extraneous observations. One or two of Mr. Cooper's cautionary remarks may be quoted.

" Dr. Wells, in his Experiments and Observations (London, 1818), states that he was informed by Mr. George Adams, an eminent optician, ' that he does not know a short-sighted person who has had occasion to increase the depth of his glasses if he began to use them in the form of spectacles; whereas he can recol- lect several instances where those have been obliged to change their concave glasses. repeatedly for those of higher powers who had been accustomed to apply them to one eye only.'

" The above is a fact which ought to be more generally known, and is an argu- ment against the use of single eye-glasses. Near-sighted persons are very apt to stoop while at their studies. To avoid a practice so injurious to the figure and the health, a high desk should be provided to read and write at, and such glasses should be used as are just sufficient to enable the parties to pursue their occupation at the ordinary reading distance, that of about 14 inches. In all cases of myopia, and especially in early life, or when the affection is just commencing, it is highly important that any tendency to an over-supply to the eyes should be counteracted by a proper quantity of bodily exercise. The adjusting powers of the eyes should also be daily exercised in the attempt to obtain a distinct view of objects at a dis- tance."—P. 59.

Of the variety of *Myopia dependent upon the Loss of the Adjusting Power of the Eye*, much has been already said when treating of Presbyopia. The eyes when excessively exerted upon minute or near objects, become unable to adjust themselves for the due perception of the more distant ones. Mr. Cooper remarks the prevalence of the concave spectacles among the Germans, who are such hard students, and Mr. Ware found of 127 stu- dents at one of the Colleges at Oxford, 32 employed an eye-glass or spec- tacles. Mr. Cooper relates a few cases in which the employment of the eye upon minute objects gave rise to the production of a myopia, which was cured by rest of the organ, its exercise on distant objects, country air, and the abstaining from, or the cautious use of glasses.

Impaired Vision.—Hard reading, and a variety of occupations among the working-classes, give rise to this affection, the prevalence of which among

the latter the author says may be judged of by the fact of no less than 329 of such cases having been relieved between Jan. 1842 and Jan. 1846, at the North London Ophthalmic Institution—a conclusion, however, not easily drawn in the absence of a statement of the total number of patients attending during this period.

In the *treatment* of this affection, rest of the eyes, at the least for a while, is of the first importance ; and those persons whose occupations forbid this, should at all events intermit them repeatedly and apply cold water to the eyes, working as little by artificial light as possible. If there is marked congestion of the retina, as shown by brilliant spectra, photophobia and deep seated pain, cupping from the temple is indicated. Successive blisters to the brow are very useful also ; or the following rube-facient may be applied upon a piece of flannel to the forehead for two or three minutes every or every other night : ℞. *Liquor. ammon. fort.* ℥ ss., *Sp. rorism.*, *Sp. camph.* āā ℥ j., *Sp. v. r.* ℥ ss. M. The bowels are to be kept duly regulated, and an alterative course of mercury often proves of great service in arresting disease in the retina. When general debility is present, tonics, in combination with counter-irritation, and especially bark and iron, are the appropriate medicines, duly regulating the bowels by means of aloes and myrrh, and carefully watching the condition of the various secretions. In these subjects, cold ablution, followed by active friction with a rough salted towel and a horse-hair or Indian flesh-glove, is a very invigorating procedure. When there is weight or oppression of the head the shower-bath should be employed, highly sensitive persons even well bearing the shock it occasions if they stand the while in hot water. The due regula-tion of the diet, and the removal of disorders of the digestive organs, in such who suffer from them, are of great importance.

Artificial Light.—Every one is aware of the great superiority of day-light over any kind of artificial light. Here are some of the reasons for this.

" When the eye is exposed to light in which the red and yellow rays prevail, the colours in excess produce, first an excitement, and afterwards a degree of debility of the retina. Consequently that light which approaches the nearest to white is best suited to the eyes, and that which partakes most of red, the worst. Another cause of the injurious effects of artificial light is the direct and concentrated manner in which it acts upon the eyes. The rays from a candle or lamp fall direct upon the object which a person is regarding (the page of a book or sheet of writing-paper for instance), and are thence reflected into the eyes, carrying with them a considerable quantity of heat, which irritates and in-flames the external coats of the eyes, and the lining membranes of the lids. A great portion of the heat which accompanies the sun's rays is absorbed during the repeated reflections from the atmosphere and clouds, or from the surface of the earth, which the light undergoes before it reaches the eyes. Another cause of the distress produced by artificial light upon some eyes, is the fact of the rays not falling in parallel but divergent lines upon the object, from which they are reflected in equally divergent lines ; consequently, indistinctness of vision results from the want of definition of the object : whereas the rays of the sun, owing to its immense distance from the earth, may be regarded as parallel. The un-steadiness of artificial light is another serious evil to persons suffering from weak eyes. One great superiority of day-light over artificial light is its perfect even-

ness.   It is some inequality, either in the current of air, or in the supply of combustible material, that renders the common flame unsteady and varying."—P. 167.

Among the various kinds of artificial light, Mr. Cooper disapproves of that from *gas*, owing to its yellow colour and heating power, these rendering it injurious to the eyes when employed upon minute objects.   It evolves carbonic acid also in large quantities, and some of the gas escapes unconsumed ; so that it should never be employed in apartments unless some special means for their ventilation is also in operation.   The *Camphine* lamp burns with a pure flame possessed of great power of illumination ; but it should not be brought too near the book, or ordinary candle-light will in future be found insufficient.   " By the injudicious employment of too brilliant a light, for the purpose of study, the sensibility of the retina may be blunted by slow and imperceptible degrees, without the patient being alarmed by any sudden impairment of vision, or marked difference in his sight."   The light of a well-constructed Argand Lamp is of a very superior description.   Mr. Cooper recommends *wax candles* for those who employ their eyes by night, as affording sufficient illumination without fatiguing or heating the organs.   " I find, from experience, that the light they afford enables me to write longer with less distress to the eyes, less irritation of the lids, and a greater amount of general comfort than any other."   Composition candles formed of stearine and wax, also give an excellent light, and are less expensive.   As artificial light proves injurious from an excess of the red and yellow rays, much of its inconvenience may be obviated by surrounding it with a shade coloured blue in its inner side, which reflects a whiter or purer light.   The same object may be attained by using a pale blue glass chimney for the lamp, or allowing the light to pass through a bluish fluid.   Contrivances of this kind are to be preferred to wearing shades or spectacles.

Although, as we have stated, we do not approve of the system of morselling an entire subject, the account of Mr. Cooper's work we have given shows it to be one of considerable merit.

Dr. Littel's " Manual " will be found useful to those who are too much engaged, or, as is too often the case with the degenerate students of the present day, too indolent to consult more elaborate works.   The descriptions are faithful, and the directions for treatment judicious.   Their conciseness, however, and our want of space, prevent our giving a more detailed notice of its contents.   We may remark, however, that Dr. Littel disposes of the operation for Strabismus in too off-hand a manner for our taste.   Tnat its efficacy has been ridiculously and mischievously exaggerated, and that sometimes from the most sordid motives, we admit : but, well knowing the advantageous issue which has attended certain carefully-selected cases, we should indeed feel sorry in joining Dr. Littel in absolutely proscribing so simple a remedy for so grievous a deformity.

In our next number, we shall probably enter at considerable length into the subject of Diseases of the Eye, as M. Desmarres' and Mr. Wharton Jones' new works upon Ophthalmic Medicine will then be in our hands.

On Diseases of the Skin. By *Erasmus Wilson*, F.R.S., Consulting Surgeon to the St. Pancras Infirmary, Lecturer on Anatomy and Physiology in the Middlesex Hospital, &c. Second Edition, with coloured Plates, 8vo, pp. 482. London: Churchill, 1847.

Three years have scarcely elapsed since we had occasion to speak of this work in terms of commendation, and we are rejoiced to find that the opinion which we then gave of its merits has been participated in by the profession, for whom it was written. The first edition has now been many months out of print, and the present volume, with copious additions, and eight beautifully executed illustrations, is intended to supply its place. The rapid sale of the first edition has shown that the subject is one of much interest to the profession, and it proves also that the author has accomplished his task ably and satisfactorily. In truth, " THE DISEASES OF THE SKIN," by Mr. Erasmus Wilson, may now be regarded as the standard work in that department of medical literature. The plates by which this edition is accompanied leave nothing to be desired, so far as excellence of delineation and perfect accuracy of illustration are concerned. They are drawn and coloured after nature, and are engraved on steel by Adlard, with a view to giving full effect to the peculiar tints of colour of these diseases. As an explanation of the nature and objects of the plates, we cannot do better than quote the author's words, and express our conviction that they completely fulfil his intentions.

" The present edition has the advantage over its predecessor of being illustrated with coloured delineations drawn from nature, and engraved on steel. The plates are eight in number, each representing a group of diseases. For example, if the reader wish to place before his eyes the group of ' congestive diseases ' of the derma, he may turn to Plate 1, where he will find displayed, Urticaria, Roseola, and Erythema ; Erysipelas being omitted, partly because its illustration is less necessary than that of other cutaneous diseases, and partly on account of the large extent of surface its delineation would require. If the reader would contrast the ' congestive group' of cutaneous diseases with others, he will find in Plate 2, the ' asthenic effusive group,' namely, Pemphigus and Rupia ; in Plate 3, the ' sthenic effusive group,' namely, Herpes and Eczema; in Plate 4, the ' pustular group,' Impetigo and Ecthyma; in Plate 5, the ' papular group,' Lichen, Strophulus, and Prurigo; in Plate 6, the ' squamous group,' Lepra, Psoriasis, and Pityriasis ; Plate 7 illustrates the peculiar morbid alteration of the skin termed Lupus non exedens ; and Plate 8, certain diseases of the hair-follicles and hairs, namely, Acne, Sycosis, Favus, and Trichosis furfuracea.

" Another feature in the Plates which accompany this volume, and one at which I have especially aimed, is that of bringing together as many of the varieties of a given disease as possible. My reasons are twofold—firstly, that the leading characters of these varieties may be the more easily comprehended and contrasted ; and, secondly, that the reader may be placed in possession of the largest amount of illustration admitting of being compressed into a limited space. For example, in the upper division of Plate 1 will be found four varieties of Urticaria, four varieties of Roseola, and, in the lower, six varieties of Erythema ; making in the single plate fourteen specimens of cutaneous disease, the separate figures not being in any way stinted in dimensions, but being, in reality, of the

size of life. With the most ample space at my command, I could have done little more than this. I might have repeated forms, but the matter to be impressed on the mind could not have been rendered more clear or more precise. Plate 2 represents, in the upper division, two varieties of Pemphigus; and, in the lower, three varieties of Rupia. The upper division of Plate 3 exhibits four varieties of Herpes, and the lower, the same number of varieties of Eczema. In Plate 4, the number of varieties of Impetigo, in the upper division, is four; and in the lower division, the varieties of Ecthyma are three. In Plate 5, there are, in the upper division, six varieties of Lichen; and in the lower, four varieties of Strophulus, and one of Prurigo. Plate 6 contains, in the upper division, three varieties of Lepra; and in the lower, three varieties of Psoriasis, and one of Pityriasis. Plate 7 is devoted to the single subject of Lupus non exedens; while in Plate 8 are four varieties of Acne, one of Sycosis, two of Favus, and one of Trichosis. So that, in the limited compass of eight octavo plates, no less than sixty-one subjects are represented."—P. x.

In the present edition, Mr. Wilson has added very considerably to our stock of knowledge on the structure of the skin, the foundation upon which all our notions of pathology and all our practical applications must be based. "Conceiving," he observes, "that no real improvement could be made in the practical department of the subject in any other way than through the advancement of the scientific portion of these diseases, I have continued to bestow much attention and labour on the examination of the cutaneous tissues." In furtherance of this purpose, the author has introduced into the preliminary chapter on the Anatomy and Physiology of the Skin, his original researches on the structure of the epiderma, the hair, and several of the morbid tissues. The following is Mr. Wilson's description of the structure of a hair.

"In structure a hair is composed of three different tissues, namely, of a loose cellulated tissue which occupies its centre, and constitutes the medulla or pith; a fibrous tissue which incloses the preceding and forms the chief bulk of human hair; and a thin layer of superimposed scales which envelopes the fibrous structure, and forms the smooth, external surface of the hair.

"The medulla is absent in the minute or downy h.... rs, and is not unfrequently absent or small in quantity in fine hairs, from whatever region they are selected. In the coarser hairs of the head and of the body, on the other hand, it is always present, and it is especially remarkable in grey hair. It varies in breadth from a mere line to a cylindrical body of one-third the diameter of the hair, and is composed of large nucleated cells of a globular or oval figure filled with granules and packed together, apparently without order. When newly formed, these cells with their granules are distended with fluid, but in the shaft of the hair the cells frequently contain air, which from its highly refractive powers, gives the medulla a dark appearance when examined with the microscope. Varieties in structure of the hair are very unusual: I have, however, once observed the presence of two medullæ; the displacement of the medulla nearer to one side of the periphery of the hair than to the other in the short and thick hairs of the body is not so uncommon.

"The middle or fibrous layer of the hair is composed of oval-shaped cells closely packed together, and arranged in a linear order. These cells are identical in structure with the cells of the deep stratum of the epiderma, that is to say, they are composed of granules congregated around a central granule which constitutes the nucleus of the cell. When examined with the microscope it is not in all cases easy to discover the cells, but their component granules are always obvious, and from the plan of disposition of the cells, and their oblong shape, the granules have a linear arrangement, and assume the appearance of

fibres. The hair-fibres offer some variety of appearance according to the focus in which they are viewed. For example, with a superficial focus the peripheral granules are alone seen, and the hair appears to be entirely composed of granules arranged in single rows. With a deeper focus the rows of granules appear to be associated in pairs, each pair having between them an unconnected row of dark and apparently nuclear granules. In this view the fibres resemble, very closely, a chain composed of open links. While with a still deeper focus, the centre of the cell, with its nucleus and granular periphery, is brought into view. In different hairs, these three appearances are seen with various degrees of distinctness.

" The colour of hair appears to reside partly in the granules, and partly in an intergranular pigmentary substance which occupies the interstices of the granules and of the fibres. The most deeply coloured granules are those which constitute the nuclei of the cells, and in the lighter hairs these alone give colour to the fibrous structure. In the darker hairs more or less of the peripheral granules are also coloured, and pigment may be observed in greater or less abundance in the interfibrous spaces. With respect to the granules the pigment appears to occupy their periphery, sometimes surrounding them completely, and sometimes occupying a portion only of their surface. In the peripheral granules of the cells the outer segment is the more frequent seat of the pigment, while many are entirely destitute of that production. This total absence of colour in many of the granules composing even the blackest hair, gives to the fibrous structure, when examined with the microscope, an uninterruptedly streaked appearance, and the irregular intermixture of pigment granules with colourless granules, bestows upon the tissue between the streaks a dotted character. In red hair, the granules have a delicate golden yellow tint, while the pigmentary matter is amber coloured. In the white hair of Albinoes and of the aged, the pigment is entirely wanting.

" The external layer of a hair is a thin and transparent envelope, measuring in the hairs of the head about $\frac{1}{1000}$ of an inch in diameter. It is composed of flattened scales similar to those of the epiderma, and the scales forming the surface of the layer overlap each other from the root to the point of the hair. The overlapping border of the scale is notched and convex, and forms a slight projection beyond the level of the surface. Seen with the microscope, the prominent edges of the scales have the appearance of undulating and jagged lines, which cross at right angles the shaft of the hair. The prominence of the edges of the superficial scales of a hair is the cause of the sensation of roughness which we experience in drawing a hair between the fingers from the point towards the root, a sensation which is not perceived when the direction of the hair is reversed. It explains also, the circumstance of hairs occasionally working their way into wounds, beneath the nails, and into the gums. In the hairs of the axilla the external layer is generally more or less split up into fibres, which give it a shaggy appearance. Sometimes this appearance occurs only on one side of the hair, or more on one side than the other, while at others it is equally conspicuous around the entire shaft. It forms a remarkable distinctive character of the hairs of this region, and is due, as I believe, not to original formation, but to their saturation with the perspiratory fluid."—P. 25.

Again, in reference to the follicle of the hair, and the mode of implantation of the latter within the skin, he observes :—

" The follicle of the hair is a tubular canal excavated in the substance of the derma and lined by a thick layer of epiderma. It consequently presents the same three structures that enter into the composition of the skin, namely, an epidermal lining or sheath, a vascular layer, and the common fibrous tissue of the corium. Of the latter it is unnecessary to say more than that it offers the same characters around the hair as upon the surface of the derma, and that it sends a delicate

sheath downward upon the root of the hair when the latter extends into the sub-
cutaneous areolar tissue. The vascular layer corresponds with the papillary layer
of the derma, and supports a fine net-work of capillary vessels, which supply nutri-
tion to the epidermal sheath and hair. The epidermal layer is composed of strata
of superimposed cells, identical in structure with those of the epiderma. It is nearly
as thick, and often thicker than the hair which it incloses, and lies in close contact
with the latter, and, at its lower part it terminates in a slightly expanded and cellu-
lar mass, the pulp of the hair.

"The hair-follicle terminates inferiorly in a slightly dilated cœcal pouch, which
is filled for about the extent of $\frac{1}{100}$ of an inch, with a mass of minute granules
and cells. This mass of granules and cells is the pulp of the hair, and the cells
are progressively converted into the substance of the hair. The cells produced at
the middle of the fundus of the cœcal pouch necessarily proceed upwards in a
direct line and are the first converted into fibres, hence the pointed character of a
hair torn up from its root. The cells from the sides of the pouch proceed, with a
gentle curve upwards and inwards, and merge into the substance of the root of the
hair, and those from the upper part of the pulp assume an almost vertical position,
and constitute on the one hand, the outer layer of the hair, and on the other, the
epiderma of the follicle. So that, at its upper part, the hair-pulp may be said to
divide into two parts, a central and isolated part which constitutes the shaft of the
hair, and a tubular sheath which remains in connexion with the vascular part of
the follicle on the one hand, and is in apposition with the surface of the hair on
the other. The structure of the pulp and the mode of growth of the hair remind
us forcibly of the formation and growth of the teeth, and furnish an additional rea-
son for regarding the latter as dermal appendages. They explain also the well-
known fact that, if the epiderma be withdrawn from the derma when loosened by
decomposition, the hairs may frequently be removed inclosed in their epidermal
sheaths, which obviously extend uninjured around the bulb, and isolate the hair
from the vascular part of the skin. I have found the vibrissæ nasi the best fitted
for illustrating this point, and I may remark that the proof of such an organisation
completely sets at rest the question of the vascularity of the bulb."—P. 27.

Among the subjects contained in this edition which have been retouched
by the author, we observe the following in reference to the pathological
nature of the papular diseases.

"In the preceding edition of this work, I stated my belief that the precise
element of the dermal system affected in the papular diseases was the papillæ of
the skin. More recent and careful examinations have proved to me that this is
not the case, but that the real seat of morbid change is the vascular boundary
of the various excretory tubules of the skin: for example, the sudoriferous and
sebiferous ducts and hair-follicles. This fact being determined, we have an ex-
planation of various other phenomena, which accompany the eruption; for ex-
ample, the frequent perforation of the pimples by a hair, the formation of a thin
scale upon the summit of the papula, the occasional appearance of a minute
aperture in this situation, and the oozing of a transparent and colourless fluid
from the same point. We can also better understand the provoking itching
which is a symptom of the eruption, the obstruction which is offered to the escape
of secretions, and the obstinacy of these disorders. The papulæ of prurigo
are perfectly identical with the papulæ of lichen, the difference between them
being, that the latter are generally acute in their course, while the former are
always chronic. But there is an appearance of the skin in prurigo that must be
familiar to all who are conversant with cutaneous diseases; an unevenness of
surface, produced by numberless slight but broad elevations, separated from each
other by the linear markings of the skin. Now these are the elevations which
have been described by all dermatologists, not excluding myself, under the name

of the broad and flat papulæ of prurigo. 'Soft and smooth papulæ, somewhat larger and less acuminated than those of lichen, and seldom appearing red or inflamed, except from violent friction. Hence an inattentive observer may overlook the papulæ altogether.' Rayer speaks of them as being 'soft to the touch, and broader than those of lichen, from which they also differ in preserving the natural colour of the skin.' 'They occasionally project in so slight a degree, that they appear to be situated rather in the substance than on the surface of the skin.' Now there is an evident obscurity about these descriptions, a contradiction in fact, which must have involved many in perplexity with regard to the real meaning of the authors. Papulæ, precisely defined, broad, soft, smooth and large, and yet, not distinguishable in colour from the adjacent skin, easily overlooked, and suggesting to the practised eye some uncertainty as to whether they were *in* or *upon* the skin. I will endeavour to explain the mystery.

"Prurigo, I believe to be, in its origin, a disease of the nervous system, and especially, of the cutaneous nerves. As a consequence of the altered innervation of the skin, the dermal tissues become changed in structure—namely, condensed and thickened. The most careless examination is sufficient to establish these two points; the skin feels hard, it moves like a piece of thick leather; the areæ included between the lines of motion are large; its natural suppleness is gone; its very colour is changed; it looks yellowish and dirty. But it is smooth; there are no such projections as we should call pimples, or if there be, they are few and scattered. Arrived at this point, there remains but one conclusion for the student. There are no papulæ, therefore the disorder cannot be prurigo. And yet the disease is so characteristically prurigo, that, setting aside the symptom of pruritus, the dermatologist is able to decide at once upon its name.

"What, then, are the signs by which prurigo is so immediately distinguished? They are, the thickening and condensation of the skin, and the consequences of this condition. Upon close examination, the angular areæ, included by the linear markings of the skin, are seen to be elevated above their natural level, the elevation being occasioned by the thickening of the derma. That this is the case is evident from the position of the pores—namely, in the furrows which constitute the linear markings, and at the point of divergence of several of these. The elevations, therefore, are simply the effect of a swollen state of the derma, the areæ being magnified by hypertrophy, and the linear markings being magnified in depth by the same cause. These swollen areæ are the so-called papulæ, the broad and flat and smooth papulæ. It is not, then, to be wondered at, that they should be with difficulty discerned, that they should be 'overlooked,' seeing, as I have shown, that they are not papulæ at all.

"But we do meet with papulæ in prurigo, although not a necessary feature of that disease. These papulæ are not the areæ of the linear markings of the skin; they occupy the grooves of the linear markings. They are, in fact, the pores raised into pimples, and are identical with the pimples of lichen. It is these latter which generally suffer abrasion of their tips from scratching, and then become surmounted by a small dark-coloured scab."—P. 239.

The Chapter on the tuberculous affections of the skin, including the two forms of lupus, namely, non-exedens and exedens, is entirely new. Mr. Wilson is of opinion that the diseases severally denominated "Vitiligo" and "Leuce" are in reality one and the same morbid affection, and that they correspond in every particular with lupus non-exedens. The treatment from which he has obtained the best results in the cutaneous variety of lupus, is a prolonged course of the liquor hydriodatis hydrargyri et arsenici, at the same time modifying the local disease by the occasional application of acetum cantharidis.

Mr. Wilson's classification, which is essentially physiological and practical, we gave in full in our review of the first edition of this work. In

the present, some trifling changes have been made, which have for their object to render the classification more complete ; for example, Ichthyosis and Cornua are removed from the group of diseases depending on Hypertrophy of the papillæ to that of diseases of the sebiparous system, to which they more properly belong. The diseases of the sudoriparous system are more fully treated of under the heads of Idrosis, Anidrosis, Osmidrosis, Chromidrosis, and Hæmidrosis. Several newly-described forms of disorder of the sebiparous system are considered under the names of Xeroderma, Stearrhœa, and Narcosis folliculorum. And Ringworm and Plica are grouped under the same generic name, both diseases presenting, according to Mr. Wilson, the same elementary pathological change. Thus we read :—

"Two diseases only come strictly under this denomination, as being characterised by a morbid alteration in the structure of the hair. One is amongst the most common of the diseases of the scalp of this country, namely, ring-worm ; the other is a disease of central Europe, and particularly of the marshy districts of Poland, the plica polonica. Much confusion has existed with regard to the former of these affections, in consequence of the variety of names which have been assigned to it, and also from the fact of the generic title comprehending diseases of a totally different character. Moreover, the names themselves are ill chosen, the term tinea relating to the condition of the hair at a period when the disease has been in existence for some time ; while the term porrigo was selected by Willan, only because it had been in use among the ancient classic writers ; neither of these terms having any reference to the nature of the disease. Under these circumstances, I consider that a first step to the proper understanding of this affection, and the removal of existing difficulties, might be made by adopting for its designation the term *trichosis*, proposed by Dr. Mason Good. I am further induced to give a preference to this term by finding it to coincide with what I believe to be the true pathological nature of the disease, namely, a morbid action producing the degeneration and destruction of the hairs."—P. 415.

The following is Mr. Wilson's description of that troublesome disorder affecting the scalp of children, porrigo scutulata or, as Mr. Wilson terms it, trichosis furfuracea.

" In common ringworm, the leading character of the disease is the formation of a thin layer of scurf, either in separate scales around single hairs, or in patches which include several or a considerable number of hairs. In an early stage of this disease, nothing more is perceptible than these scales, but the diagnosis is made evident by the observation that the scurfiness is limited to particular hairs, and clusters of hairs ; and that the patches corresponding with these clusters have a circular or oval form. Moreover, the aperture of the follicle of the diseased hair is generally more or less prominent or papillated, having the appearance of being drawn up by the growth of the hair, and bearing a close resemblance to the papillated condition of the skin in 'cutis anserina.' Again, if one of the hairs issuing from this furfuraceous base be gently pulled, the probability is, that it will not come up by the root as in the case of healthy hairs, but will break off near the skin, or within the follicle, according to the period of the disease. The only inward symptom indicative of a disordered action in the scalp is a slight degree of itching, which is relieved as soon as the scurf is torn away by the nails, or removed by the aid of a comb. Indeed, it is this symptom that first makes the parent or guardian aware of the existence of disease.

" The state of skin above described constitutes the first stage of trichosis furfuracea, and may exist for two or three weeks without being particularly

noticed. At the end of this time, however, the diseased hairs have grown beyond the follicle, and break off at a short distance from the skin, leaving an uncovered patch of scalp, of variable size, but generally of a circular form. · The disease has frequently arrived at its second stage before it is discovered, and before a medical opinion is obtained. The furfuraceous condition of the skin is now very distinct; there is also a slight redness, and sometimes an elevation of the patches above the level of the surrounding surface. The broken hairs are very uneven in point of length, ragged at the ends, and have the appearance of having been eaten through by an insect. This peculiarity has evidently given rise to the term *tinea*, one of the synonyms of the disease; and the same character in conjunction with the circular form of the patches, to the popular appellation *ring-worm*.

" The broken stumps of the hairs are also much altered in appearance; they are variously bent and twisted, and lighter in colour than the original hair. In dark-haired children they frequently form little black knobs at the mouths of the follicles; while in light-haired children, the short stumps have an appearance which may be well compared to the fibres of hemp or tow.

" At a later period, if the disease be neglected, the scales collect in large quantities, and become matted together into thick, greyish and yellowish crusts. These crusts are thicker and looser at the edges than towards the centre of the patch; and when the latter is large, the crust is broken up into several angular compartments, the line of rupture being remarkable for its white and silvery appearance. Moreover, on the surface of the crust, which is dry and harsh, the tow-like fibres of the diseased hairs may generally be perceived."—P. 416.

Under the generic name of Melanopathia Mr. Wilson details some interesting cases of darkening of the skin carried to the extent of almost negro-blackness. And in the Chapter relating to alteration of secretion of the sebiparous glands he explains the occasional production of black secretion by the skin. In an instance of this kind to which he refers, he found, on examining the morbid deposit with the microscope, that it resembled " ordinary sebaceous substance, but the nuclei of the cells, instead of being colourless, were perfectly black and every here and there formed masses of considerable size, indeed they were identical in point of structure with the deepest coloured cells of the rete mucosum of the negro-skin, the nuclei being composed of an aggregation of granules more or less shaded with pigment."

He alludes also to the case published in the Transactions of the Medico-Chirurgical Society, as occurring to Dr. Read of Belfast and Mr. Teevan, and illustrates the subject by the recital of a case of the same kind recorded in an old volume of the Philosophical Transactions.

We have been led by our estimation of this work to take a more extensive review of its contents than is customary in second notices, and we must now conclude by recommending it very warmly to our readers, and especially to the junior members of the profession. They will find the plates supersede the necessity of any others, and the volume to fulfil in every particular the character which it assumes, of being a practical guide to the diagnosis and treatment of diseases of the skin.

MEDICO-CHIRURGICAL TRANSACTIONS. Published by the Royal
Medical and Chirurgical Society of London. Twenty-ninth
Volume. Volume the Eleventh of the Second Series, 1846.

THE new volume of these Transactions has made its appearance this
year in quite a new livery, being " got up" in a similar style to the vol-
umes of the Sydenham Society, and with equal care and taste. The type,
too, is of smaller size than in the former volumes, but is clear and legi-
ble. Although somewhat prejudiced in favour of handsome types and
wide margins, we regard the change altogether as an improvement which
we have no doubt will give satisfaction to the Fellows. Our business,
however, is with matters of more importance, the contents, which we
shall, as usual, examine in detail. But we must first notice the remark-
able difference which exists in the quality of the Plates. The five by
Basire, illustrative of Mr. Toynbee's Paper on the human kidney, are
of great beauty, and superior to any we can recollect to have seen in for-
mer numbers of the Transactions. The first plate, also, by Bagg, is ex-
ecuted with the well-known skill of this artist, and will be admired for
the distinct definition which the figures give of the objects they are in-
tended to represent. These excellent plates put us quite out of conceit
with the lithographic illustrations, which are indifferent specimens of the
art, and inferior to those by Perry in former volumes. The Council,
however, has been liberal in the supply of plates, which amount to eleven
in number, and some of them are of large size, and contain numerous
figures. The first paper excited a good deal of interest when the views
of the author were announced to the profession. It is—

I. ON THE MINUTE ANATOMY AND PATHOLOGY OF BRIGHT'S DISEASE
OF THE KIDNEY, AND ON THE RELATION OF THE RENAL DISEASE TO
THOSE DISEASES OF THE LIVER, HEART, ARTERIES, WITH WHICH IT
IS COMMONLY ASSOCIATED. By *George Johnson*, M.D.

Although our knowledge of the symptoms and effects of Bright's disease
in the system is tolerably complete, pathologists are by no means agreed
as to the precise nature of those changes which the kidney undergoes in
the course of this disease. Dr. Johnson states that, he has " ascertained
that the epithelial cells of the healthy kidney contain a minute quantity
of oil, in the form of yellowish, highly refracting globules, the appearance
of which in the cells of the liver is well known to microscopical observers.
The quantity of fat in the cells of the healthy kidney is much less than
in those of the healthy liver, but he has found it present, in greater or
less quantities, in the healthy kidneys of more than twenty subjects
which he has examined for this point, since his attention was first direct-
ed to it. Dr. Johnson does not seem to be aware that the presence of
fat in the healthy kidney had been previously noticed by several of the
German microscopical observers. He remarks—

" The secreting cells of the kidney, then, resemble those of the liver, in con-

taining a certain proportion of oil, and the presence of this material in such a situation appears to indicate that a certain quantity of·fat is excreted by the kidneys, as well as by the liver.

" Having premised thus much of the healthy epithelium, with its contents, Bright's disease may be described as *primarily and essentially an exaggeration of the fatty matter which exists naturally in small quantities in the epithelial cells of the healthy organ.*"—P. 2.

A specimen of the disease in an advanced stage, examined with the microscope, presents epithelial cells in every degree of engorgement, from the incipient enlargement of the parietes in which the cell-nucleus is still visible, to the complete engorgement of the cells in which the nucleus is concealed by the fatty globules. The disease then appears to be a fatty degeneration of the kidney, precisely analogous to the fatty degeneration of the liver.

Dr. Johnson, before endeavouring to explain the changes which the kidneys undergo during the progress of Bright's disease, gives the following account of the arrangement of the vessels in the kidney as demonstrated by Mr. Bowman.

" A small terminal twig of the artery pierces the dilated extremity of the urinary tube : within the capsule thus formed by the expansion of the tube, the artery breaks up into a capillary plexus, which Mr. Bowman has named the *Malpighian tuft of capillaries;* these capillaries again unite into a single *efferent* vessel, which passes out through the capsule, and goes to form another plexus, which immediately *surrounds the urinary tubes.* The course of the circulation then is from the artery into the Malpighian plexus, which lies *within* the dilated extremity of the urinary tube, and from this plexus through the efferent vessel into the capillary plexus, which lies *external* to the tubes amidst their coils and convolutions."—P. 5.

The author then adds :—

" Any one having a clear conception of the anatomy of the kidney cannot fail to perceive the effect upon the circulation through the gland, which must result from the changes which I have described as primarily and essentially constituting Bright's disease of the kidney. The fat accumulates in the epithelial cells to such an extent as to produce engorgement and dilatation of the cells, and of the tubes which are lined by them ; the consequence is, compression of the capillary plexus surrounding the tubes, giving rise to congestion of the Malpighian plexus. The passive congestion of the Malpighian plexus leads to transudation of the serum of the blood, and sometimes to rupture of the delicate vessels of the plexus, and the consequent escape of the colouring matter and fibrin of the blood. These constituents of the blood pass into the tubes, and so become mixed with the urine. Their escape from the blood-vessels is the result of a mechanical impediment to the return of the blood consequent on compression of the veins by an accumulation of fat in the tubes."—P. 6.

Dr. Johnson calls attention to the influence of a mechanical impediment in giving rise to the escape of serum and of blood, and their appearance in the urine, as shown by the ingenious experiments of Dr. Geo. Robinson, detailed in the 26th volume of the Society's Transactions. Dr. Robinson tied the renal vein in rabbits, the result of which was the appearance of albumen and of blood in the urine ; the same consequences followed the partial or slow obliteration of the vein. Dr. Johnson notices that a mechanical obstacle to the circulation through the heart or lungs may give rise to venous congestion of the kidney and the consequent presence of

serum and of blood in the urine without organic disease of the organ, and that the red spots visible on the surface of the kidney in some cases of Bright's disease, and which have been erroneously supposed to be dilated Malpighian bodies, were first shown by Mr. Bowman to be nothing else than the convolutions of a tube filled with blood, that has burst into it from the gorged Malpighian tuft of its extremity. The tortuous, dilated, and varicose condition of the veins and arteries, so often seen on the sur- face of the kidney, is likewise attributed to a mechanical obstruction.

Dr. Johnson notices a remarkable difference in the effect produced upon the two organs—the kidney and the liver, by an accumulation of fat in their substance ; the function of the kidney becomes seriously interfered with, and its nutrition impaired, while the liver appears to suffer but little, either in its nutrition or its functions. We have not space for the account of the peculiarities of structure in the two organs, by which the difference is explained. The following remarks will be read with interest :

"Without anticipating what will presently be said of the pathology of Bright's disease, I will here offer a few remarks on its stages and forms ; and, first, I will venture to assert that there is no inflammatory or congestive stage *preceding* the deposit. The congestion which often accompanies the disease, and which is a consequence of previous morbid changes, may be either active or passive. The way in which passive congestion occurs has already been sufficiently explained. Active congestion may be thus accounted for :—a large number of the epithelial cells become gorged with fat, and their secreting function is in consequence im- paired : those portions of the gland which are less involved in the disease are now called upon to do an increased amount of work ; this may lead to active con- gestion, and the consequent effusion of serum and blood into the tubes. In many cases there probably exists both active and passive congestion of the ves- sels ; but I repeat that this is the *consequence*, and not the *cause*, of the deposit in the gland.

"Dismissing, then, a congestive stage, the earliest appearance of fatty degene- ration of the kidney would, of course, be recognised by the aid of the microscope before the gland has undergone any change visible to the naked eye. As the accumulation of fat increases, the kidney becomes granular or 'mottled' on the surface. The smooth, mottled kidneys are such as have the greater number of the tubes in the cortical portion almost uniformly gorged ; the gland is often much increased in size by the great amount of fat in the tubes, the vessels are much compressed, and the surface of the kidney sometimes presents an almost uniform yellowish white colour, with here and there a few vessels which have escaped obliteration. These are generally cases which have run a comparatively rapid course. The secreting function of the kidney has become greatly impaired, and death has been the consequence. The kidney which has arrived at this degree of fatty engorgement, probably never becomes atrophied.

"The *granular and atrophied* (Bright's) kidneys are those in which the accu- mulation of fat takes place less rapidly and uniformly ; some convoluted tubes become gorged with fat, forming prominent granulations ; and these, compressing surrounding parts, produce obliteration of the vessels and atrophy of the tubes, and thus the entire gland gradually wastes and contracts. These are the cases in which the tubes of the pyramids become filled with fat, part of which, perhaps, has been carried into them from above, while part is contained in their own epi- thelium, which perhaps (as has already been suggested) assumes a more active secretory office in consequence of the wasting of the cortical portion of the gland.

"I do not maintain that every atrophied kidney, and every kidney presenting a granular appearance, have undergone these changes in consequence of fatty

degeneration of the gland ; on the contrary, I am well aware that many instances of granular and contracted kidneys are met with, in which the degeneration has been of a totally different kind, and I am also in a position to show that these are not cases of true Bright's disease; that they belong to a class of diseases which the best pathologists have always endeavoured to distinguish from Bright's disease, although, in the absence of any accurate means of definition, diseases totally and essentially different in their nature have often been confounded under one name."—P. 10.

Dr. Johnson's observations have led him to conclude that, in by far the greater number of cases, Bright's disease, or fatty degeneration of the kidney, is associated with a similar fatty degeneration of the liver. In the post mortem examination of 22 cases of Bright's disease of the kidney, there was in 17 a most marked degree of fatty degeneration of the liver. In four of the remaining five cases there was a decided increase of fat in the hepatic cells; and in one case only was there no such increase. During the period in which these cases were examined, Dr. Johnson met with only four cases of fatty liver which were *not* combined with Bright's disease of the kidney. In three of these cases, although there was not a decided fatty degeneration of the kidney, there was still a marked increase of fat in the epithelial cells of this gland. In the fourth case of fatty liver there was *no* increase of fat in the kidney. Of 23 cases in which both the liver and the kidneys might be considered *healthy*, there was an unusual quantity of fat in *both* organs in four cases, in the *liver alone* in two cases, in the kidney alone in two other cases ; while, in the remaining 19 cases, the fat existed in what might be considered the usual quantity in *both* organs. It is needless to remark how important is a knowledge of these facts in any attempt to explain the pathology of Bright's disease.

" It has been fully established by the observations of Dr. Christison, MM. Solon and Rayer, and of many subsequent observers, that Bright's disease is very frequently associated with tubercular disease of the lungs. Among the 49 cases from which my preceding observations are drawn, there were 14 in which tubercles were found in the lungs. Of these 14, there were six in which there was decided fatty degeneration of both the liver and the kidneys. In one case the *liver alone* was fatty, in one the *kidneys alone*, and, in the remaining 6 cases, there was either *no* increase of fat in the liver or kidneys, or the increase was not so great as to be considered morbid ; so that, out of 21 cases of fatty degeneration of the liver, 6 only occurred in connection with tubercular disease of the lungs, while 17 occurred in combination with fatty degeneration of the kidney. The number of observations, I am aware, is too small to enable one to state exactly in what proportion of cases the different combinations to which I have alluded may be expected; but I feel assured that future observers will confirm my own conclusion that fatty degeneration of the liver in different degrees is more commonly associated with Bright's disease of the kidney than with tubercular disease of the lungs."—P. 12.

According to Dr. Johnson's observations, it rarely happens that a patient dies of Bright's disease of the kidney without presenting more or less of that common change in the arteries which Mr. Gulliver has recently shown to be a fatty degeneration of the vessels. A similar change has been observed in the valves of the heart. Although we have quoted largely from this interesting paper, we must find room for the following remarks :

" Let us now look back upon the ground we have gone over. We have seen

that, in subjects who die of Bright's disease of the kidney, there is usually found a similar disease in the liver, and, in many cases, in the arteries and on the valves of the heart; the disease being in every case an increase and an accumulation of a material which exists in small quantities in the healthy condition of these parts.

"In any attempt to explain the *pathology* of these diseases, their source must be looked for in the process of digestion and assimilation. The processes of primary or secondary assimilation, or both, fail with regard to this fatty matter, which, not undergoing the changes requisite for its ready elimination from the system, or for its application to the nutrition of the tissues, is thrown into the circulation. An effort is made to carry it off by the liver and kidneys: the fat finds its way into the secreting cells of these glands; its escape from these parts, in a free state, is a slow and uncertain process, and, finding no material in sufficient quantity with which to pass off in a state of combination, the fat accumulates in, and obstructs, the glands.

"The increased amount of fat in the secreting cells of the glands must certainly be looked upon as an *effort* to carry off this material. It must also be looked upon as, in a great degree, an *unsuccessful effort*. It will presently he shown that the quantity of uncombined fat in the urine in cases of Bright's disease is seldom greatly increased. As far as regards the result of her effort, then, Nature is as unsuccessful in her attempt to carry off the fat by the glands as to remove it by throwing it into the arteries. In both cases the fat is thrown out of the circulation, but its accumulation in the glands and arteries leads to a serious interference with the functions of these parts.

"The conditions under which these diseases occur may be looked upon as analogous to those which give rise to diabetes. In diabetes, in consequence of imperfect digestion or mal-assimilation, sugar is eliminated in various excretions, but especially in that of the kidneys. Again, in the cases in which fatty degeneration of the liver and kidneys occurs, an effort is made to eliminate fat; the sugar being soluble, is readily carried off; the fat being insoluble, and consequently difficult of elimination, accumulates in the secreting cells of the glands."—P. 15.

Our author calls attention to the fact, that Bright's disease is much more common in large towns than in the country, and in large towns is more prevalent among the intemperate, ill-fed, &c., than among those who enjoy more of the comforts of life. He mentions that Mr. Simon inspected the body of a cat, which had died after having been kept for about six weeks in a dark cellar. The kidney presented the appearance of a mottled Bright's kidney, and the tubes of the cortical portion were completely gorged with fat. The liver also contained an increase of fat, but in less amount than in the kidney.

Dr. Johnson, believing Bright's disease to be a constitutional disorder, next endeavours to show that acute inflammatory dropsy, which is commonly supposed to originate in this disease of the kidney, has really no necessary connection with it. He states that, exposure to wet and cold, and the consequent suspension of the cutaneous functions, may give rise to congestion of the kidneys, scanty albuminous and bloody urine and dropsy. But, "if the patient so attacked was previously of sound constitution, and if he be treated actively, with a view to restore the functions of the skin, to relieve congestion of the kidneys, and to carry off the accummulated fluid by the bowels, the dropsy and the other symptoms will disappear, and the patient will be restored to perfect health. Such an attack has no tendency to terminate in Bright's disease, which, it cannot be too often re-

peated, is not primarily a disease *in* the kidney, but a constitutional disease, manifesting itself *at* the kidney."

A similar view is taken of dropsy supervening upon scarlatina, which he considers as a disease essentially distinct from Bright's disease, being in fact an inflammation of the kidney which excites an increased development of the epithelium lining the urinary tubules. This material partly accumulates in, and chokes up, the tubes, while part of it becomes washed out with the urine, and may be detected in that fluid by the aid of the microscope.

The occasional occurrence of fat both in healthy urine and in Bright's disease is noticed by Dr. Johnson. He believes that epithelial cells containing fat are washed from the urinary tubes by the current of urine, and he looks upon their presence in the urine as one of the most certain signs of the existence of Bright's disease—especially of its early stage, as at this period a greater quantity of oil escapes than at a larger stage of the disease, when the tubes are more uniformly choked by their accumulated contents.

Not much is said on the subject of treatment. As would be expected from the view taken by the author, of the renal disease being a local manifestation of a general constitutional disorder, the remedies recommended are chiefly those of a hygienic character, accompanied with a caution to avoid a fat diet, and to be moderate in the use of such materials as starch and sugar, which seem difficult of digestion, and which may, perhaps, by a slight chemical change, be converted into fat. Local bleeding may sometimes be required for the relief of the congested condition of the kidney and is often followed by great benefit, but it must be used with caution. Dr. Johnson, in conclusion, states that he hopes to have established the following points :—

" 1. That the epithelial or secreting cells of the healthy kidney contain a certain quantity of oil ; the proportion of which, under certain circumstances, and within certain limits, may fluctuate considerably.

" 2. That it is an excessive increase of this fat, leading to engorgement of the epithelial cells, and of the urinary tubes, which constitutes primarily and essentially Bright's disease of the kidney.

" 3. That the presence of albumen and blood in the urine, and the wasting of the tissues of the kidney, are secondary phenomena, dependent on the mechanical pressure of the accumulated fat.

" 4. That in the majority of cases, Bright's disease is associated with a similar fatty degeneration of the liver and arteries, and frequently the valves of the heart; these diseases being related to each other as joint effects of one common constitutional cause.

" 5. That probably acute inflammatory dropsy, occurring in a person previously healthy, and the dropsy which occasionally supervenes upon scarlatina, have no necessary connection with Bright's disease of the kidney.

" 6. That most important evidences of the approach and presence of the renal disease may often be derived from a microscopical examination of the urine, in which will be found fat in unusual quantity ; partly in the form of free oil-globules, and partly contained in epithelial cells which have escaped from the urinary tubes.

" 7. That the insight which we have obtained into the peculiar change which the kidney undergoes in Bright's disease, and the knowledge we possess of the simultaneous occurrence of a similar change in other organs, may serve as important guides in the prevention and cure of the disease."—P. 22.

This paper affords evidence of no ordinary ingenuity and labour, and it cannot fail to raise Dr. Johnson's reputation as a minute pathologist. We have not attempted more than to furnish an abridged account of the results of our author's researches, though well aware that some of his conclusions have been objected to, and that his views generally have been regarded as too exclusive. In order to present to our readers a connected account of the most recent opinions on the pathology of Bright's disease, we shall now proceed to analyse two other papers on this subject, contained in the Transactions, though not in the order of succession.

II. Account of a Case of Congenital Deficiency of one Kidney with Granular Degeneration of the Existing One. By *George Busk*, Surgeon of the Seaman's Hospital Ship " Dreadnought."

The patient, a gentleman, about three years before his death, which occurred at the age of 27, became bloated and pale, and incapable of as much exertion as formerly. He continued, however, his usual pursuits up to Christmas last. On the advice of a friend he took a quantity of calomel so as to produce ptyalism, and in March he consulted Mr. Ceeley of Aylesbury.

" At that time the bowels were occasionally irritable, with an inordinate secretion of bile, and sometimes torpid, with a deficiency in that secretion. His appetite was lost, and he complained much of languor and lassitude ; his legs also became anasarcous. He suffered from occasional attacks of painful swelling of the foot, which were of short duration, and considered to be of a gouty nature. The stomach became more and more irritable, and he frequently vomited. He was troubled with epistaxis to a great extent, and, it appears, had been subject to nasal hæmorrhage from childhood. In May, on the occasion of an attack of the gouty affection, the urine is noted to have been acid and albuminous, with a specific gravity of 10·10. He passed about three pints in the 24 hours. The superficial veins on the surface of the chest were at this time (May 5th) observed to be considerably enlarged. The heart's sounds are stated to have been normal, but there was dulness, on percussion, over a considerable space in the præcordial region, and the impulse of the heart is described as inordinate; the pulse 104. Mr. Ceeley noticed, on the subsidence of the ptyalism, a small crack-like sore on the frænum linguæ, which appears never to have healed; from the 3rd to the 6th of May there was constant oozing of blood from the mouth. On the 10th of May, to the other symptoms was superadded a painful attack of hæmorrhoids. The tongue was, towards the end of life, extremely sore, and cracked longitudinally ; the urine pale, and reduced in quantity to one pint and a half in 24 hours, and highly albuminous. The hæmorrhage from the mouth and nose frequently recurred, and latterly was copious, and almost continuous. The strength became much reduced, especially in the lower extremities, where the weakness amounted to a degree of paralysis. A few days before death, the under side of the tongue and the inner suface of the cheeks became gangrenous, and the mouth afforded a copious viscid, mucoid and extremely offensive secretion. The body exhaled a strong and peculiar, and somewhat urinous, odour. Death took place on the 16th of May." P. 271.

The body was inspected by Mr. Busk 24 hours after death. It retained the strong urinous odour. The following were the chief morbid appearances. The right pleural cavity contained about six ounces of clear serum.

The left was obliterated by old adhesions. The pericardium occupied a considerable space, and contained about four ounces of serum, in which abundance of urea was detected. The heart was also double the natural volume and loaded with fat externally. The cavities were all equally enlarged, and the left ventricle was hypertrophied. The valves were healthy. The omentum and mesentery were loaded with fat. The liver was about one-third larger than natural. It did not grease the scalpel, but under the microscope it presented a large quantity of oil. No trace whatever of the left kidney or supra-renal capsule could be found on the most careful search. "The right kidney was about 2 inches in length, by 1¼ in width, and presented externally a contracted or corrugated aspect, and the roughened capsule could not be stripped off to any extent without laceration of the substance of the gland. The colour of the kidney was very pale, speckled with white, and on a section, scarcely any distinction of substances was observable. The whole presented a condensed, cicatriform aspect, of a semi-transparent hue, sprinkled with small opaque specks, and, in the remains of the tubular portions, marked with white striæ, obviously vessels filled with a dense white material. The pelvis was remarkably small, and the mammillary processes appeared also to be unusually few in number." The left ureter entered the bladder at the usual situation, and was traced upwards in the natural course for about six inches, where it ended in a cœcal point. The tube was very narrow but pervious to the bladder.

"The substance of the kidney was examined microscopically: the tubuli uriniferi were found to be in parts indistinct, or obliterated, and in others to be filled with a semi-opaque white granular material, soluble, or rendered transparent by acetic acid, and presenting none of the characters of oil, very few globules of which were observed in any part of the gland. It was the dense white material, consisting of minute sub-globular refracting particles, soluble in acetic acid, the accumulation of which in the larger straight tubuli uriniferi constituted the white striæ above mentioned."—P. 273.

Mr. Busk remarks that, on referring to the particulars of the numerous cases of the total absence of one kidney on record, it will be observed that, in the majority of them, the deficiency of one gland has been compensated for, by an increased size of the existing one, or that the existing kidney presented, in addition to its abnormal bulk, sufficient evidence, in its irregular form, of its being constituted by the coalescence of two. Other cases, again, are mentioned, in which the size of the existing gland has not exceeded the natural standard, among which the present case is to be classed. "In this respect, then, it presents nothing new, and there is every reason for supposing, that had the existing kidney retained its healthy condition, good health might have been enjoyed with one kidney, rather below the average size. But the present instance shows more particularly what a very small portion indeed of secreting structure in the kidney is compatible with tolerable health." We fully coincide in this observation. As to the predisposing causes of the disease in the kidney, Mr. Busk observes that, unless the condition of the heart be considered as such, there was no other obvious cause in this case, excepting the double duty the gland was called upon to perform.

"The pathological condition of the kidney, and the presence of albumen in

the urine, are clearly, in this case, not to be referred to the secretion and deposition of oily matter in the tubuli uriniferi. It affords, on the contrary, an instance of what may probably be considered the effects of chronic adhesive inflammation of the venous plexus and tubuli uriniferi, causing partial obliteration of the former, and contraction and obliteration of the latter, or their infarction with solid albuminous matter. The latter phenomenon is one so frequently met with in various affections—such as scarlatina, jaundice, and active congestion or inflammation of the kidney from exposure to cold, &c.—that it might, perhaps, be readily admitted as a frequent cause of degeneration of the gland, and which I believe it is. The adhesive capillary phlebitis, which I presume to have been the principal cause of the contraction and destruction of the glandular tissue, is so closely analogous to what occurs in other organs, especially the liver, and which ultimately produces in them cicatriform contraction and induration, that the probable identity of the affection in all these cases may fairly be assumed."—P. 274.

Mr. Busk attributes the obliteration of the capillary venous plexus to the formation in those vessels of fibrous clots, such as are met with in certain circumstances in nearly every part of the venous system. The examination of a great many kidneys affected with granular degeneration, as occuring in the active class of men who come under observation in the Seaman's Hospital, has led him to conclude that adhesive inflammation of the tubuli uriniferi and venous plexus of the kidney, is, among that class, by far the most frequent cause of chronic albuminuria, and what is termed granular degeneration of the kidney. And he thinks that "the presence of oil in the tubuli urinferi, though undoubtedly of frequent occurrence, has no direct or necessary influence in the production of albuminuria, for the reason that such an undue secretion of oil by the kidney may exist to a very great extent, without any albumen being present in the urine, as may be observed in certain cases of jaundice for instance; and on the other hand, because albuminuria may exist, and all the phenomena of suppressed secretion of urea be produced, without any oil being discernible in the tubuli uriniferi."

Mr. Busk is also inclined to believe that the deposition of oil in, or in other words, its secretion by, the kidney, is, in most cases, concomitant with some affection of the liver, by which, the special function of that gland being impeded, the kidney acts, as it were, vicariously, and eliminates some of the carbonaceous matter which should have been eliminated by the liver in the form of oil, &c. That the kidney, in case of jaundice, assumes this vicarious action, is sufficiently obvious, and that the bile is actually secreted in the epithelial cells of the tubuli uriniferi, may also be distinctly seen. In other classes, however, the cause of the kidney secreting oil may be traced, perhaps, to pulmonary disease, and in these cases also it is to be looked upon as a vicarious action.

This is a case of considerable interest. Had the patient possessed two kidneys instead of a single one, his life would in all probability have been longer preserved, and the important functions of these organs would have continued to be performed sufficiently for the purposes of life to a later period even if both kidneys had become implicated in disease. It will be noticed that our author's views of Bright's disease differs materially from those of Dr. Johnson, in so far as Mr. Busk considers adhesive inflammation of the tubuli uriniferi and venous plexuses of the kidneys as a

common cause of the affection, independently of. any fatty deposit. The presence of albumen in the urine may, however, be due, as supposed by Dr. Johnson, to a mechanical cause, the fibrinous matter producing a similar effect on the circulation of the gland to that attributed to the fatty deposit. Mr. Busk's observations, however, do not imply that a structural change in the kidney and albuminous urine may not arise from the deposition of oily matter in the tubuli uriniferi, but that the latter is not the invariable, or the most frequent, cause of Bright's disease. The class to which this case belongs, we presume to be that which Dr. Johnson has announced his intention of showing to be essentially distinct from Bright's disease.

III. On the Intimate Structure of the Human Kidney, and on the Changes which its several component Parts undergo in Bright's Disease. By *Joseph Toynbee*, F.R.S. &c.

Mr. Toynbee informs us, in a note at the commencement of this paper, that he has for three years, in conjunction with Dr. Bright, been conducting investigations into the intimate structure of the kidney, but that various circumstances arose to prevent the issue of a work which had been designed to comprise the results of their joint labours. We know not what these circumstances were, but we suspect that, in most points of importance in respect to the minute structure of the kidney, they were anticipated by Mr. Bowman, in his admirable paper which appeared in the Philosophical Transactions for 1842. Mr. Toynbee states that he is now indebted to the kind liberality of Dr. Bright for the opportunity of using the drawings and engravings taken from the preparations at his expense, and generously adds, that nearly everything of value which may be contained in the observations which follow is to be attributed to the assistance of Dr. Bright, and that it is not without some diffidence that he (Mr. T.) ventures to prefix his name to the present communication.

The publication of the fruits of these investigations, whether confirmatory or opposed to the views of Mr. Bowman, cannot fail to prove of interest to the profession, and the descriptive part, in conjunction with the beautiful engravings, form a valuable contribution to the Society's Transactions. We fear that we cannot convey to our readers in an abridged form and without the illustrations a clear view of the minute anatomical structure of the kidney, an account of which forms the bulk of this paper. Those who are interested in the subject will no doubt consult the volume itself, and we must be content with noticing one or two points in which the writer differs from Mr. Bowman. The latter anatomist asserts that the corpora Malpighiana cannot be injected from the tubes. Mr. Toynbee has many specimens in which these bodies have been so injected and he adduces the authority of Dr. Gerlach, of Mayence, in confirmation of his statement. This anatomist has also succeeded in injecting the tubuli uriniferi from the ureter and the Malpighian capsules at the same time. Mr. Toynbee is also at variance with Mr. Bowman in agreeing with those anatomists who state that the tubuli uriniferi terminate in a plexiform manner by communicating with each other, which Mr. B. denies, and believes

to be founded on deceptive appearances. Mr. Bowman describes the tubuli as having an expanded origin, the expansion being composed of the basement membrane of the tube and enclosing in it the wounded tufts of capillary vessels usually designated the corpora Malpighiana. Several modern anatomists have doubted the accuracy of this view; and Mr. Toynbee is also opposed to it. He states that the capsule of the corpus Malpighianum, instead of being, as supposed, an expansion of the tubuli, is a distinct globular investment, enveloping both the tubuli and the tuft of vessels. This globular investment is neither continuous with the tubuli, nor with the blood-vessels, but is expanded over them. Into one part of the capsule, the artery enters, while the other receives the tubuli. The artery divides and subdivides, so as to form a globular mass of capillaries in the interior of the capsule from which the efferent vessel emerges. The tubuli, after penetrating the capsule, becomes tortuous, and twists into a coil, and after being in contact with the ramifications of the corpus, it emerges from the capsule. There are some minor points of difference in respect to anatomical detail, to which, if our space permitted, we should be induced to allude. We can only add, in concluding our notice of this part of the paper, that Mr. Toynbee's observations, being the result of careful research and much labour, and tending to correct some erroneous views, are well deserving of record, but we are of opinion that they do not contribute materially to our present knowledge of the minute structure of the kidney.

Mr. Toynbee, after remarking "there appears to be no doubt that the true cause of this disease is the circulation of the blood of the organ, of an unnaturally large quantity of carbonized and azotized elements," and that it has been proved that the ultimate effect of this supercarbonized state of the blood is the deposition, in the kidney, of adipose matter, plainly gives in his adhesion generally to the views of Dr. Johnson, whose paper appears to Mr. Toynbee to be the only account which exhibits the disease in its true relations. He differs, however, from Dr. J. in one important point, viz. in believing that a state of congestion precedes any structural alteration in the kidney, so far agreeing with Dr. G. Robinson, Mr. Busk, and others. Our author remarks :—

"Now, considering that in this disease the blood is highly charged with carbonized principles, and, consequently, that in its circulation through the kidney, that organ must be called upon to throw off a larger quantity of carbonaceous matter than the natural secretion would contain, an amount of irritation will be excited which must be followed by nervous depression and ultimate congestion of the entire organ. The general view, combined with the results of my investigations into the early stages of the disease, induces me to agree with Dr. Bright and others, that the congestive condition of the blood-vessels of the organ does precede, and that necessarily, the deposition of fat, the enlargement of the organ itself, or of its uniferous tubes, or of any other of its vessels. "The cause of the presence of albumen in the urine is acknowledged to be an obstructed condition of the blood-vessels of the organ. Dr. Johnson considers the obstruction to arise from a deposition of fat in the tubuli uriniferi; but there can be no doubt that albuminous urine often exists without any such deposition."—P. 320.

Mr. Toynbee divides Bright's disease into three stages, each of which is founded on certain pathological conditions of the organ ; but antecedent to

the development of any of these changes, he believes that the organ is for some time in a state of congestion. In the first stage, " the kidney is enlarged, and innumerable black points are visible, which are the corpora Malpighiana dilated, and their vessels distended with blood, seen through the capsule. The white spots, which derive their appearance from the collection of fatty matter, begin to be perceptible.

" The peculiar features of this stage consist of an enlargement of the arteries entering the corpora Malpighiana; the dilatation of the vessels of the tuft, the capillaries and the veins; an increase in the size of the capsule of the corpus and of the tubuli, and a large addition to the quantity of the parenchyma of the organ." The artery and the corpus is twice or thrice its natural size, which is the case also in the Malpighian tuft and the capillary vessels which spring from the tuft. The capillaries and veins are greatly enlarged, giving to the surface of the organ the resemblance of net-work. This is the commencement of the stellated condition which is so marked a characteristic of the next stage of the complaint. The tubuli are also much increased in their dimensions; but the fat which is found in them is soft and white.

In the second stage, the organ is very greatly increased in size, its surface is smooth, and presents numerous white spots; the capsule is but slightly adherent to the surface and the tissue of the organ is flabby. The structural changes exhibited during this stage are the following:

" The artery of the corpus Malpighianum becomes so greatly enlarged, that frequently it equals the dimensions of the tube itself, and is eight or ten times its natural size. It is tortuous and dilated, and sometimes, previous to entering the capsule of the corpus, presents analogous swellings to those of varicose veins. The primary branches of it, in forming the tuft, are also distended to ten or fifteen times their natural size, and are not unfrequently discovered external to the capsule of the corpus, as though thrust out by some external force. The vessels forming the tuft are likewise enormously enlarged, and very often the minutest branches are fully as large as the main artery of the corpus in a healthy state.

"Occasionally the tuft is broken up, and instead of forming a compact mass, exhibits its individual branches separated from each other. At other times the branches of the tuft are actually larger than the primitive artery of the corpus."— P. 321.

Mr. Toynbee is surprised at Mr. Bowman's statement that he has never seen, in any one instance, a clearly dilated condition of the Malpighian tuft of vessels, which is attributed to the peculiar injection used by that anatomist. An enlargement of the renal arteries and dilatation of their branches are also observable in this stage of the disorder. The capsule too is greatly increased in size.

" The tubuli differ considerably from their healthy condition, being enlarged to two or three times their natural size, and aggregated together in masses, so as to lie in contact with each other, and form definite roundish bodies: they are also extremely convoluted with numerous dilatations; frequently they are varicose. At other times they present distinct aneurismal sacs, which bulge out from one part of the wall of the tube, to which they are attached by a small neck or pedicle. Occasionally, some of the vessels of a convolution are smaller than the others, and their size nearly natural. The tubuli in the masses are so closely packed, that the blood-vessels are evidently compressed, and rendered incapable of admitting an injection. At times a tube, even at some distance from the corpus, becomes very convoluted, and knotted into a mass."—P. 322-3.

In cases where the kidney is much enlarged, the parenchymatous cells will be found not merely increased in size, but adipose depositions will be visible throughout them.

In the third stage of the disease " the kidneys are smaller than their natural size ; hard, white granules are prominent on their surface, which is more or less lobulated ; the capsule is adherent ; vesicles of large size are frequently everywhere interspersed ; and numbers of smaller ones stud the whole surface.   On making a section, the organ is found to be deprived of blood ; the cortical part contracted, the blood-vessels large, and their walls thick."

The arteries are in a more contracted condition than that described in the second stage ; and the Malpighian tuft is so often changed from its natural state, that the greater part of its vessels are not capable of being injected.   The capsule of the corpus has assumed a more contracted appearance.   The tubuli are larger than in the preceding stage, and are gathered into rounded masses, which form the granules on the surface of the organ.   The latter are of a white hue, and are most commonly fully distended with fatty depositions ; though not unfrequently they appear like dark spots ; the tubuli in that case being full of blood.   A rounded appearance is generally characteristic of the granules, in each of which the component tubule forms innumerable convolutions." The tubuli are filled with oily cells, granular matter, particles of various sizes, and blood globules.   The parenchyma is hard, and is composed of elongated stellated cells, from the angles of which fine threads proceed, and communicate with each other. There is nothing said on the subject of treatment. Mr. Toynbee agrees with Dr. Johnson in recommending hygienic measures in order to prevent the development of the disease.

We must confess that this paper has disappointed us, especially as great pains have confessedly been bestowed on the subject of which it treats. There is less of novelty and interest in the pathological part even than in the anatomical, and no conclusions of a practical character are deduced from the author's researches.

IV. History of a Case of Ligature of the Left Subclavian Artery between the Scaleni Muscles, attended with some Peculiar Circumstances. By *J. C. Warren*, M.D., Professor of Anatomy and Surgery in Boston, U. S. A., Honorary Fellow of the Royal Medical and Chirurgical Society, &c.

Dr. Warren remarks that the history of an operation for the ligature of the subclavian artery would seem scarcely worthy the attention of the Society.   This operation has been done many times in various parts of the world, and the annals of this distinguished body contain no less than twelve cases.   The case which he has the honor to lay before them possesses peculiarities, and will, he hopes, afford some practical inferences.

James Avery, aged about 30, on the evening of Dec. 23rd, 1843, while in a state of intoxication, slipped on the ice, fell, and struck his left shoulder against the curb-stone of the side walk.   Surgical aid was called, and violent efforts were made to reduce the dislocation, but in what man-

ner the patient could not tell, excepting that he thought one person placed his foot, with a boot on, in the axilla. He was sent to the hospital, and on the next day was seen by the author, who found the left arm and shoulder much swollen. Leeches and cold applications were employed, and on the following day the swelling was so much reduced as to enable him to decide that no dislocation existed. During the night of the third day following, Dec. 28th, the patient was seized with a violent fit of coughing, in which he felt something give way in his shoulder. The next morning the shoulder and arm were very much discoloured and enlarged, the arm was painful and the patient much prostrated. On the 30th, it was discovered that the man had no pulse in his left wrist or in any part of the arm, and he had also lost both feeling and motion in the extremity. The swelling increased until it became enormous, the arm turning black in the axilla. A vesication was noticed on the back of the fore-arm. January 27th 1844, an abscess was found to be forming in the axilla. In seven days it pointed, but did not open till Feb. 4th, when it discharged a coagulum and about a pint of fluid dark-coloured blood. Three days subsequently, at six o'clock in the morning, a sudden gush took place from the wound by which the bed was inundated, the mattresses soaked, and blood poured upon the floor. Exhausted and almost lifeless he sunk into a state of syncope and the hæmorrhage ceased. As he was too low to undergo any operation, it was agreed that, if he lived to the next day, the subclavian should, if possible, be tied. By the next morning, he had much revived. At ten o'clock he took eighty drops of the tincture of opium, and at eleven was carried into the operating theatre.

A great difficulty presented itself in the outset of the operation, the swelling of the shoulder, the tumour in the axilla, and the natural short-ness of the neck, almost obliterating the space between the shoulder and lower jaw. Dr. Warren, after minutely detailing the steps of the opera-tion, states, that the aneurism-needle was passed under the first dorsal nerve which was mistaken for the artery. The wound was too deep, too narrow, and of consequence too dark, to permit the artery to be visible. The anterior scalenus was partially visible, and, passing the fore-finger of the left hand to the edge of this, a good portion of the muscle was divided by the probe-pointed bistoury, introduced upon the finger. The subcla-vian artery then became quite sensible to the touch, and slightly distin-guishable by the eye. A long aneurism-needle was passed under the artery, and at this moment a slight whistling was heard, and the author was satisfied that some air had entered the thorax. The ligature was tied, and the wound closed.

The patient improved after the operation. On Feb. 22nd, the thirteenth day, the ligature was removed. On the 29th, a stream of blood was seen to issue from the unclosed part of the wound; the blood lost amounted to about a pint, did not issue per saltum, and was of a venous colour. The hæmorrhage was arrested by pressure. At the commencement of March he had an attack of pneumonia confined to the lower lobe of the left lung, and also a second attack about the first of May. By the 1st of October the swelling had disappeared from the arm, and motion had returned in the shoulder-joint. The large excavation in the axilla was reduced to a fistulous tube. On Feb. 4th, 361 days after the operation, the author

was able for the first time to detect a distinct pulsation in the radial artery, and subsequently one of an indistinct character in the ulnar and brachial. The patient, June 15th, had nearly recovered. There were still fistulous openings in the neck, and axilla. Sensation and motion were slowly improving.

The author remarks that the cause of the rupture of the subclavian artery in this case is involved in some obscurity. The probability seems to be, that great violence was employed in the reduction of the dislocated humerus, and that the arteries and nerves were contused by strong pressure of the operator's boot, combined with the forcible extension of the arm. The vessel did not rupture immediately, because its coats were contused and not torn asunder, but a separation of the contused parts took place, in consequence of the violent efforts of coughing on the fifth day after the accident.

The detailed account of this case is somewhat prolix. It is however a remarkable instance of recovery from great perils, and the favourable result was mainly due to the skill and care of the Doctor.

V. Two Cases of Disease of the Brain, following the Application of a Ligature to the Carotid Artery. By *John P. Vincent*, Esq. Surgeon to St. Bartholomew's Hospital.

Mr. Vincent relates that the two following cases appear to possess an interest that entitles them to be placed under the consideration of the Society.

James Mason, æt. 48, in July 1829, was admitted into St. Bartholomew's Hospital with an aneurismal tumour under his right ear. It had been forming eight months, and was about the size of a small orange. On July 18th, Mr. Vincent tied the common carotid artery. In about an hour and a half after the operation the patient was discovered to be slightly convulsed on the right side. He afterwards sunk into a state of stupor. He was bled to ℥ xxx. After this he became more sensible. He had twitchings of the right side. He was again bled during this and the two succeeding days, and altogether lost ℥ 84. His left side became paralysed, his urine and fæces passed off involuntarily, he swallowed with difficulty, and on the 24th he died. On examination of the body, it appeared that the veins of the right side of the brain were not so filled as those on the left. The substance of the brain on the right side was quite soft and cream-like.

On the 9th of April, 1845, William Brown, aged 28, was admitted into the Hospital, having stumbled a few hours previously against a door whilst smoking a pipe, which penetrated the tongue anterior to the right tonsil. The patient felt a portion of the pipe in the wound, but was not able to remove it. There was some bleeding, which gradually subsided. His voice was husky. He complained of pain, which was increased on his attempting to swallow or to open his mouth. On introducing a probe into the wound no foreign body could be detected. The parts around the wound were greatly swollen. During the next five days the swelling gradually in-

creased, and impeded deglutition. On the morning of the 5th day his breathing became difficult. On the 16th, hæmorrhage took place to the extent of ℥ xxiv., which the house-surgeon arrested by pressure. Mr. Vincent was sent for, and fearing that, if the pressure was remitted, the hæmorrhage would proved fatal, he proceeded to tie the carotid artery. It was observed during the operation that the patient made violent efforts with his right side, but that he never moved the left extremities. During the night the left extremities were frequently convulsed. His pulse, which had been 132, sunk to 96. During the next two days the twitchings of the right side and paralysis of the left side continued. About midnight of the 18th, whilst coughing, about an ounce of arterial blood flowed through the nose and mouth and from the wound in the neck. On the 21st, a fit of coughing, with hæmorrhage to the extent of two or three ounces from the nose and mouth, terminated the patient's existence.

Examination of the Body.—The wound in the neck presented a sloughy appearance. At the bifurcation of the carotid on the right side there was a large and firm coagulum, in the middle of which was the extremity of the tobacco-pipe which had penetrated the artery at the point of division into external and internal carotids. The convolutions of the brain on the right side were flattened and softened. On dissecting the brain, irregularly-shaped cavities filled with ash-colored effusion and shreds and particles of a greenish hue were discovered.

Mr. Vincent adds, what must be obvious, " that if the portion of the tobacco-pipe had been detected at the time the patient was brought to the hospital, and withdrawn from its position in the wound, he must have died instantly, from the gush of blood that would have taken place, as this body seemed to have completely plugged up the artery. I understand that such a sudden fatal event has occurred under similar circumstances."

These two interesting cases will draw the attention of surgeons to a source of danger from the operation of tying the carotid artery, which has been in a great measure overlooked. Dr. Norman Cheevers, in an elaborate paper, entitled, Remarks on the Effects of Obliteration of the Carotid Arteries upon the Cerebral Circulation, published only last year in the Medical Gazette,* has particularly noticed the erroneous opinions which prevail on this subject, and has collected no less than twelve cases in which cerebral disease, and in ten instances death, resulted after one of the carotid arteries had been tied. He states, also, that he has perused nearly all the recorded cases in which the carotid artery has been tied, and found that, in many of the patients who did not die of brain disease, cerebral symptoms of a very decided kind occurred, such as drowsiness, giddiness, dizziness, delirium, paralysis of the corresponding side of the face, severe pain in the head, alarming faintness, vertigo, &c. Indeed, in most of the cases, some one or more of these symptoms has presented itself, yet the writings of Mr. Samuel Cooper, Sir A. Cooper, M. Manec, Mr. James Miller, and others, on the operation, tend to show or directly affirm, that the carotid may be tied without risk of injury to the brain.

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* Vol. 36, October 1845.

VI. Case of Punctured Wound and Ligature of the Posterior Tibial Artery, in the Upper Third of its Course. By *James Moncrieff Arnott*, F.R.S. Surgeon to the Middlesex Hospital.

Mr. Arnott remarks that, when an arterial trunk or main branch is wounded, the rule of practice is that the vessel should be tied at the seat of injury, or as it may be more truly expressed, when it can, it ought to be tied at the seat of injury, as the most certain means of arresting hæmorrhage ; the qualification being rendered necessary by the fact that it is sometimes impossible, or is deemed inexpedient, to put the principle into practice. The circumstance which chiefly operates in creating an exception to the rule is the situation of the wounded artery ; and it is this, no doubt, which has influenced those who, in punctured or gun-shot wounds of the posterior tibial artery high up, have recommended other means of meeting the difficulties and dangers of the case.

A case is adduced of punctured wound of the posterior tibial high up, where Sir Astley Cooper tied the femoral artery, but the bleeding recurred, and the limb was amputated, the patient not surviving. In future cases of the kind Sir A. Cooper advises immediate amputation. Mr. Arnott mentions another case of wound of this artery by a ball, in which M. Dupuytren tied the femoral artery, and the patient recovered. Mons. D. in consequence recommended that, when the principal artery of a limb ruptured by a ball is followed by an aneurismal tumour, the vessel should be tied between it and the heart. On the other hand, Mr. Guthrie severely criticises this eminent French surgeon. He relates two cases of gun-shot wound of the leg attended with hæmorrhage, in both of which the femoral artery was tied, but the bleeding recurred, leading to amputation, and death. In another instance Mr. G. cut boldly through the muscles of the calf, and tied the Peroneal artery, which had been wounded, thereby saving the limb—and he recommended that a similar proceeding should be adopted when the posterior tibial is wounded.

Mr. Arnott notices, in addition to this difference of opinion as to the treatment to be pursued in wounds of the posterior tibial, another which exists as to the mode of reaching it high up in cases of aneurism or secondary hæmorrhage lower down ;—some surgeons recommending the division of the whole thickness of the muscles of the calf ; others an incision on the inner edge of the tibia, the gastrocnemius being pulled aside and the soleus alone divided. That ligature of the femoral artery is an uncertain means of arresting hæmorrhage from the posterior tibial, is shown by the three cases which have been adverted to, and as Mr. Guthrie's proposal of cutting directly through the muscles of the calf has not hitherto been put into practice, Mr. Arnott thinks the following case possesses claims upon the attention of the Society.

A robust young man was admitted into the Middlesex Hospital on January 1, 1845, with a punctured wound from a joiner's chisel in the calf at the junction of the upper with the middle third of the leg, and a little to the inner side of the mesial line—arterial and venous blood flowed in quantity. From the situation, depth, and direction of the wound, as ascertained by a probe, it was evident that the posterior tibial was probably wounded. Mr. Arnott determined to cut down upon it at once, in

order to secure both ends. He made an incision through the skin and muscles of the calf, to the extent of 6½ inches; the deep fascia being thereby exposed, the opening in it made by the chisel was enlarged to the extent of two inches. After considerable difficulty from the bleeding, it was ascertained that, besides the wound in the posterior tibial, both venæ comites were divided. In consequence of the troublesome character of the bleeding from these veins, and the difficulty created in discovering the artery, one of them had a ligature placed on both ends, whilst the lower end of the other was subjected to pressure. Two ligatures were then placed on the artery, one above the other, below the puncture—it was not till the latter was tied that the hæmorrhage ceased. But little febrile disturbance followed the operation; the lower ligature on the artery came away on the 8th day—the upper on the 9th. During the night of the 11th some bleeding took place from the lower angle of the wound, which was not arrested by compression of the femoral artery, but which was easily checked by displacing some coagula from the wound, and making pressure at the lower part of it by means of a small compress of lint, which was left in the wound;—this was removed in three days, and the case proceeded subsequently uninterruptedly to a favourable termination. The wound cicatrised in less than two months, and the patient recovered with the limb as efficient as the other.

Mr. Arnott remarks, that the incisions in this instance were wholly within the limits of the calf, and that the pain and spasm of the divided muscles from pressure, in separating the sides of the wound during the operation, were considerable; but the venous hæmorrhage chiefly tended to render the operation tedious and difficult. He states—

"Taking all circumstances into consideration, it must be allowed that the operation of cutting down upon the posterior tibial artery when wounded under the calf, and tying it, is an operation severe to the patient, and troublesome to the surgeon, requiring both time and patience on his part. On the other hand, when we consider that the object of this operation is to save limb and life; that by adopting it we take the most likely method of attaining these objects, by putting in practice the most certain means of arresting arterial hæmorrhage; that upon the evidence afforded by this case, no danger arises from the mere size of the wound, and no permanent detriment from the extensive division of the muscles,—I think it must be conceded, until experience shows the contrary, that this is the proceeding which ought to be adopted in wounds of this artery high up."—P. 51.

A case of wounded posterior tibial artery which occured to Mr. Lawrence is related, in order to show the importance of early interference, and the injurious effects of internal extravasation. Mr. Arnott, in conclusion, ventures his " opinion, that when the posterior tibial artery requires to be tied high up, on account of aneurism lower down, the easiest mode of reaching it will be by cutting directly through the muscles of the calf, instead of by incision at the edge of the tibia."

This is a paper of considerable practical value. The facts may not be sufficient to establish the proceeding recommended by Mr. Arnott as a rule of practice, but they show that our present experience is in favour of such a course.

Most of the papers in this volume are of great interest, and we shall return to it in our next number.

A MANUAL OF MATERIA MEDICA AND THERAPEUTICS, INCLUDING
THE PREPARATIONS OF THE PHARMACOPŒIAS OF LONDON,
EDINBURGH, AND DUBLIN, WITH MANY NEW MEDICINES. By
J. Forbes Royle, M.D., F.R.S., &c. &c., Professor of Materia
Medica and Therapeutics, King's College, London.   Small 8vo,
pp. 716.   London : Churchill, 1846.

THIS volume is one of a very useful series of Manuals, beautifully got-up
and published by Mr. Churchill. Although the form of the volume and the
name " Manual " might induce some persons to anticipate any thing not
like a complete and elaborate treatise on the subject, we can assure our
readers that they have here as much matter as would fill two ordinary-
sized octavo volumes, and a very full and complete treatise on Materia
Medica; adapted not merely to the wants of students, for whom it is
principally intended, but also to those of the practitioner.   The beautiful
paper and typography, and the excellent wood-cuts, are beyond all praise,
albeit the smallness of the type, remarkably clear though it be, will not,
we fear, find favour in the eyes of many, even of those who, like ourselves
have not yet seen three-score years.

In issuing so expensive a volume at so low a price, the publisher has,
we doubt not, rightly estimated the wants of the profession, and the pro-
bable sale of such a work.   " If it should be asked," says the author,
" whether another work on materia medica was required in addition to
the numbers which already exist, it must be replied, that this was under-
taken at the repeated request of its publishers, who may be supposed to be
well acquainted with the wants of the profession.   This one, however,
would not have been sufficient to induce the author to undertake the work,
had he not also been aware from the complaints of pupils, and convinced
from his experience as a teacher, that the student of materia medica re-
quired something systematic to study, which, brought up to the present
time, should be sufficiently full for information, and yet as short and con-
densed as was compatible with the avoidance of being superficial."   In
both respects, although unable to satisfy himself, we think that, with one
exception, to which allusion will subsequently be made, the author has
been abundantly successful.

The difficulty experienced, both in the lecture-room and in preparing a
work like the present, of treating many parts of the subject briefly, is, as
the author states, increased, in consequence of the authoritative regula-
tions by which students are compelled to attend the course of Materia
Medica, during the first year of their attendance on lectures, ignorant of
all the sciences, an acquaintance with which is absolutely necessary to the
study of materia medica.   It would doubtless be a great improvement in
the existing regulations, if the student were compelled to commence his
medical studies by Summer courses of Botany and Zoology, or Compara-
tive Anatomy ; Chemistry and Natural Philosophy having constituted a
part of his preliminary education.   As it is, there is a great deal of need-
less repetition in the several departments of our Colleges, and the subject
of materia medica is rendered unnecessarily complex, and too often weari-
some to the student.   But there is also, in our estimation, a greater evil

still.   For, owing to the multiplicity of subjects of which the professor of
meteria medica and therapeutics has to treat, the most important depart-
ment, the actions of medicines and their applications to practical purposes,
therapeutics, is treated as though it were of minor and subordinate im-
portance.   Yet this is the information which the student does not get
elsewhere, and for which he naturally looks to the teacher of therapeutics.

Nor is this very serious evil confined to the lecture-room; it obtains more
or less in almost all our modern works on materia medica, and the present
one, we are sorry to find, does not form an exception.   Let it not be
supposed that we are advocating mere theoretical disquisitions on the
physiological or essential actions of medicines, of which, in nine cases
out of ten, we may be said to know little or nothing.   To students, at
least, such speculations would be of little or no value, and often indeed
worse than useless.   But, to take as an illustration of our meaning, the
first article on which we happen to open in the volume before us, Sulphate
of Magnesia: surely, after reading through two pages of this very close
print devoted to so common and useful a medicine, the student may fairly
expect that its action and uses should not be dispatched in a single line,
informing him that it is " cathartic, diuretic, a common constituent of a
black dose !"   And yet this is all that our author says to guide the stu-
dent in the employment of one of our most common purgatives;—he
gives him not a word as to its character as a purgative, its advantages, or
disadvantages, nor how it may be best prescribed.   Or, we may take as
another example, Ipecacuanha.   The following is all that is said under
the head of "action and uses."   " Irritant, Nauseant Emetic, Expecto-
rant, Diaphoretic, Sedative. Useful as an Expectorant and Diaphoretic in
Catarrh, or as a Diaphoretic in febrile affections of various kinds, or to
cause a determination to the skin in Diarrhœa and Dysentery. Emetic to
cut short the accession of an ague, &c., evacuate the stomach, or give a
shock to the system.   Nauseant Sedative in Hæmorrhage, &c."   Now
every practitioner knows that the action of Ipecacuanha as an Emetic
is very different from that of Tartar Emetic or Sulphate of Zinc, and that
in a given case it is by no means immaterial which is selected.   The stu-
dent, however, would not learn from his Manual that there was anything
distinctive in the operation of these several emetics.   For, under the
head of Sulphate of Zinc, he is merely told that it is "in large doses
Emetic ;" and, on referring to the article Emetic Tartar, he simply learns
that, in doses of " gr. j—ij. diluted," it is " emetic."   No reference is
made to the remarkable effects of Ipecacuanha on some constitutions in
exciting paroxysms resembling asthma ; nor to its very important thera-
peutic influence on the gastro-intestinal mucous membrane.   From an
Indian practitioner we might also have expected something more specific
in reference to its sedative action and mode of exhibition in Dysentery.
But the special therapeutic applications of the drugs are scarcely ever men-
tioned, or, at all events, are but alluded to in the most cursory manner.
A sense of duty compels us to give prominence to this very serious defect,
in the practical or therapeutical part of the present volume, by which its
value to both student and practitioner is most materially diminished. As,
however, it is almost the only fault we have to find with the work, we
have had the less hesitation in expressing our disapprobation.   For the

rest, it has our hearty approbation.   We proceed, therefore, to give our readers an account of Dr. Royle's arrangement and mode of treating his subject.

The first part of the volume is occupied by a brief Introduction, containing a sketch of the operations of Pharmacy, and of the principles of pharmaceutical chemistry.   The Materia Medica is then arranged under three sections—mineral, vegetable, and animal.   A natural-history arrangement is adopted throughout, and for the mineral department that which is employed in chemical works—proceeding from the non-metallic elements to the metals.   The author does not confine himself to the articles which have a place in the English, Scotch, or Irish Pharmacopœias, but commences with Atmospheric Air, Oxygen, Hydrogen, and Nitrogen, and has introduced most of the new medicines.   At the head of each article the synonyms are given, followed by the chemical symbols, and equivalents, the etymology, and a short account of the natural history.   The physical and chemical properties are then described, the pharmaceutical preparations detailed, then follow the tests for their purity, their actions and uses, and, when necessary, their antidotes.   The various formulæ of the several British Pharmacopœias, into the composition of which the different articles and their compounds enter, are appended, with brief explanatory remarks.

In the arrangement of the Vegetable Materia Medica the system of Decandolle is followed, and that of Professor Grant for the articles derived from the Animal Kingdom.
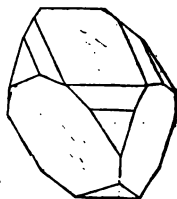
There is, as the author fears, some degree of obscurity in the mode in which the directions for making the preparations of the three Colleges are given, owing to the necessity which he felt himself under to condense these directions as much as possible.   We subjoin the following as a specimen of the author's mode of treating the mineral department of his subject.

"FERRI SULPHAS, L. E. D.

"Sulphate of Iron.   Sulphate of the Protoxide of Iron.   *Ferrum Vitriolatum.* *Sal Martis.*   F. Sulfate de Fer.   G. Schwefelsaures Eisenoxydul.   Eisenvitriol.

"Vitriolated Iron, or Green Vitriol, was known to the ancients.   It is mentioned in the *Amera Cosha* of the Hindoos (*Hind. Med.* p. 44), and it is used by them, as by the Romans in the time of Pliny, in making Ink.   It is found in nature: the Sulphuret, absorbing Oxygen from the atmosphere, is converted into the Sulphate of the Protoxide of Iron: this is apt to be changed into the red-coloured Sulphate of the Sesquioxide.   The Sulphate, being soluble, is fonnd in some mineral waters.   It is also made artificially on a large scale for use in the arts, by exposing moistened Pyrites to the air, and is called Copperas or Green Vitriol.

"Sulphate of Iron (FeO SO_3 + 7 Aq. = 139) is a transparent crystallised substance, of a bluish-green colour, and a styptic (which is also called an inky) taste.   The crystals are modifications of the oblique rhombic prism.   Sp. Gr. 1·82.   They are soluble in a little more than their own weight of cold and in ¾ of their weight of boiling water.   In the air they effloresce, and the salt, absorbing Oxygen, is converted into the Sulphate of the reddish-coloured Sesquioxide of Iron.   Heated, it is first melted in its water of crystallisation; this is afterwards expelled, and the salt re-

duced to the state of a dry white powder. (*v.* Ferri Sulphas exsiccatus, E.) At a still greater heat, the acid is expelled, and may be obtained in the form of anhydrous or glacial Sulph', the latter portion being decomposed. The Iron is left in the state of the reddish-coloured Sesquioxide, the *colcothar* of old authors and of the D. P. Sulph. Iron is insoluble in Alcohol; its solution in water reddens Litmus; its Iron is precipitated on the addition of alkalis, alkaline earths, and their Carbonates, by the former as a Hydrated Protoxide, and by the latter as a Carbonate, which is soon changed into the red Sesquioxide. q. v. With Ferrocyanide of Potassium, a white precipitate is formed with the pure Sulphate of the Protoxide, but a blue one if the Sesquioxide be present; the same change of colour ensues when the former precipitate is exposed to the air. A black precipitate (Gallate of Iron) is formed when the Sulphate containing any of the Sesquioxide is added to an infusion or tincture of Galls, or of any other astringent vegetable. Comp. Fe O 25·9+S′ 28·8+Aq. 45·3=100.

"*Prep.* Mix *Sulphuric′* ℥ xiv. (7 parts, D.) with *Aq.* Oiv. (60 parts, D.) add *Iron-filings* ℥ viij. (*Wire* 4 parts, D.) apply heat, (and when the effervescence is over, L.) filter (through paper, D.)   Set the liquor aside to crystallise, (after due concentration, D.) and then concentrate the supernatant liquor to obtain more crystals. Dry them all. (If the Sulphate of Iron of commerce be not in transparent green crystals, without efflorescence, dissolve it in its own weight of boiling water acidulated with a little Sul′; filter, and set the solution aside to crystallise. Preserve the crystals in well-closed bottles, E.)

"This process is introduced, as the Green Vitriol of commerce is usually impure. Concentrated Sul′ does not act on pure Iron, but the water of the dil. acid becoming decomposed, yields its O. to the Iron, while H. escapes in the form of gas. The Oxide of Iron formed unites with the Sul′, and the Sulphate of Iron is obtained.

"*Tests.* Pale bluish-green crystals, with little or no efflorescence; entirely soluble in water; this solution does not deposit Copper upon Iron being immersed in it; its solution, first boiled with Nit′ and then precipitated by excess of Ammonia, yields on filtration a fluid which is colourless or very pale blue. L. and E. If it be of a deep blue, then Copper is present. The boiling in Nit′ is not always necessary, for Green Vitriol is usually a mixture of Sulphate of Protoxide and of Sesquioxide of Iron. Zinc may be similarly detected by adding Ammonia in excess to the Sesquioxidated solution; after filtering, expel the excess of Ammonia by heat, and any Zinc which is present will be deposited in flakes of the white Oxide.

"*Inc.* Alkalis and their Carbonates, salts of Calcium and of Barium, Acetate and Diacetate of Lead, Nitrate of Silver, Vegetable Astringents.

"*Action.   Uses.* Astringent, Tonic, Emmenagogue.

"*D.* gr. j.—gr. v. in pills with Bitter Extracts or Aromatic Confection.

"Mr. Phillips warns from giving it in solution without first boiling the water, and expelling its atmospheric air, of which the Oxygen would peroxidize the Oxide."—P. 138.

In addition to the officinal preparations, we have a good account of most of the new preparations of this invaluable remedy.

The Vegetable Materia Medica is prefaced by a Botanical Introduction comprising a description of the parts of plants used officinally, a sketch of their "Classification," of "Vegetable Physiology," the "Geography of Plants," the connexion between the medical properties of plants and their structure or natural arrangement, and the collecting and drying of vegetables. To this introduction, as it is brief and will doubtless be useful to the student, no objection ought perhaps to be taken, on the score that some parts of it are out of place in a work on Materia Medica.

As might be expected, Dr. Royle's philological acquirements, and his acquaintance with the natural history of the East, have enabled him to throw much light on some obscure points connected with the etymology of many of the names of articles of eastern origin, as well as on their natural and commercial history. He has given, in his Preface, a list of the chief original authorities of which he has made use, both in the Botanical and Pharmaceutical department; but the attention which he has himself paid to the identification of officinal plants, and the peculiar facilities which he has possessed for obtaining information from his contemporaries who have devoted themselves to similar investigations in the East, have enabled him to enrich this portion of the volume with much new and valuable matter. We may refer, in corroboration of this remark, to the very interesting and valuable article on Assafœtida, which may also be taken as an example of Dr. Royle's method of treating the Vegetable Department of the Materia Medica.

"Assafœtida, L. E. D. Gummi Resina, L. D. Gummy-resinous Exudation (E.) of Narthex (*Ferula*, Linn.) Assafœtida, *Falconer*. Assafœtida.

Assafœtida, a product of Persia and Affghanistan, is mentioned in the ancient Sanscrit Amera Cosha. The ancients highly esteemed a gum-resin which the Romans called *Laser*, and the Greeks οϖος κυρηναικὸς, or the Cyrenaic Juice, from being produced in that region. The plant σιλφιον yielding it was an Umbellifer, and is represented on the coins of Cyrene. It has been discovered of late years, and named *Thapsia Silphium*. This Laser had become scarce even in the time of Pliny, who, as well as Dioscorides, describes another kind as obtained from Persia, India, and Armenia, which was probably the same that was known to the Hindoos. Avicenna describes *hulteet* as of two kinds: one, of good odour, from Chiruana (Cyrene?), and the other fœtid, the present *Assa-fœtida*. The term *assa* is no doubt of oriental origin, since it is applied to other gum-resins. Thus Benzoin is called *hussee-looban*; it used to be called *Assa dulcis* in old works. Dr. Lindley has received the seeds of a Ferula called *hooshee*. Anjedan, the fruits or seeds (φυλλον of the Greeks), is usually translated *Laserpitium*. The plant is called *Angoozeh* by the Arabs. The root of *Silphion* is described by Arrian as affording food to herds of cattle on Paropamisus.

Assafœtida is produced in the dry southern provinces of Persia, as in the mountains of Fars and of Beloochistan, but chiefly in Khorassan and Affghanistan; likewise to the north of the Hindoo Khoosh range of mountains, where it was found by Burnes, and also by Wood's expedition to the Oxus (*c.*) Dr. Falconer found it in Astore, introduced the plant into the Saharunpore Botanic Garden, as mentioned in the author's 'Product. Resources of India,' p. 223, and has obtained from it a small quantity of Assafœtida. He also sent home numerous seeds, which were distributed from the India House to several gardens; but the author has not heard whether any plants have been produced from them. But he has no doubt that some of those which the author is informed by his friend Dr. Christison are still in the Edinburgh Botanic Garden, were produced from these seeds, and not from those sent by Sir John M'Neill. The Assafœtida is conveyed on camels into India across both the Punjab and the Bhawulpore, and is sold in large quantities at the Hurdwar Fair. It is also conveyed down the Indus and by the Persian Gulf to Bombay.

"Two or three kinds of Fruit called Seeds are met with, which are said to be those of the Assafœtida plant, but there is no proof that more than one plant yields Assafœtida. Dr. Falconer, an excellent Botanist, after examining the original specimens, considers the plant he saw in Astore to be the same as that figured by Kæmpfer; and Dr. G. Grant, who saw the plant at Syghan, says, as stated by Dr. Christison, that its roots, leaves, and flowering stem correspond on

the whole with Kæmpfer's description, except that the root is deeply divided, like the outspread hand. The E. P. assign *Ferula persica* as probably yielding some Assafœtida. There is no doubt that its seed has been sent from the north-west of Persia as those of the Assafœtida plant; but there is no proof, nor indeed is it probable, that it yields any of the Assafœtida of commerce. The gum-resins of these Umbelliferæ are too similar to each other, for any but experienced phar-macologists to determine between *inferior* Assafœtida and varieties of Sagapenum or other Gum-resins.

"As Dr. Falconer, the author's friend and successor as Superintendent of the East India Company's Botanic Garden at Saharunpore, has had excellent oppor-tunities for examining the Assafœtida plant, both in its native sites and as culti-vated by himself, he has favoured the author with the following full account of this important plant, which he conceives belongs to a genus allied to but distinct from Ferula."—P. 414–15.

Dr. Falconer's elaborate botanical description of the plant we are com-pelled to omit; he, however, is satisfied that what he describes is the true "Assafœtida disgunensis" of Kæmpfer, which does not appear to have been met with by any other botanist since it was examined *in situ* by that excellent observer, a century and a half ago. Both in the characters of the flowers, and fruit, and in its "Pæony-leaved" habits (the true Assa-fœtida plant) differs widely from any known species of Ferula and appears to constitute a distinct and well-marked genus, to which Dr. Falconer has given the name of *Narthex*, from the Greek, νάρθηξ. This is the word employed by Dioscorides to designate an umbelliferous plant which in Latin is called Ferula, the name which Linnæus adopted for the genus to which the Assafœtida plant was formerly supposed to belong. Our classical readers will recognise νάρθηξ as the plant in whose pithy stalk Promœtheus is said to have conveyed to earth the fire of heaven. The Greeks, in the present day, employ the pith for the purposes of tinder and as a means of carrying about fire. The stalks likewise furnished the Baccha-nalian wands and splints for bandaging broken limbs.

"In the Dardoh or Dangree language (the Dardohs being the Daradi of Arrian) the plant is called 'Sip' or 'Sup.' The young shoots of the stem in spring are prized as an excellent and delicate vegetable.

"The species would appear to occur in the greatest abundance in the provinces of Khorassan and Laar in Persia, and thence to extend on the one hand into the plains of Toorkestan on the Oxus north of the Hindoo Khoosh mountains, where it seems to have been met with by Sir Alex. Burnes, and on the other to stretch across from Beloochistan, through Candahar and other provinces of Affghanistan to the eastern side of the valley of the Indus, where it stops in Astore, and does not occur in great abundance. The whole of this region, which constitutes the head-quarters of the gum-bearing Umbelliferæ, possesses the common character of an excessively dry climate, indicated in Berghaus's hygro-metric map in Johnson's Physical Atlas by a belt of white.

"Besides the gum-resin, the fruit of *Narthex Assafœtida* is imported into India from Persia and Affghanistan, under the name of 'Anjoodan,' being ex-tensively employed by the native physicians in India : 'Anjoodan' being the epithet applied to the seed of tne 'Heengseh,' or 'Hulteet,' by Avicenna, also quoted by Kæmpfer, and used by the Indo-Persian and Arabic writers generally in describing the Assafœtida plant."—P. 419.

The following account of a new remedy which is likely to come into more extensive use will be interesting to our readers.

"BEBEERINE.   Alkali of NECTANDRA RODIEI, *Schomburgk*.   Greenheart Tree.

" A considerable quantity of a wood called Greenheart is imported into this country for ship-building.   It is large in size, heavy, hard, durable, takes a polish, but is apt to split, and is of different tints of olive-green, varying from pale to dark.

" Sir R. Schomburgk, Hooker's Journ. of Bot. Dec. 1844 (British Assoc. 1845), has described the tree which yields the *Greenheart* timber of Guiana (called *Bebeera* by the Indians of Demerara, and *Sipeeri* by the Dutch colonists).   It is a new species of the Laurels, belonging to the genus *Nectandra*, and which has been named *N. Rodiei*, in compliment of Mr. Rodie, late a surgeon in the R.-N., who first, in 1834, directed attention to its valuable febrifuge properties and indicated the presence of an alkali in the bark of this tree.   Dr. Warburg also prepared what is called ' Vegetable Fever Drops' from some part of this tree, which he distributed extensively, and which were favorably reported on by various medical officers.   Dr. Maclagan in April 1843 read before the Royal Society of Edinburgh an able paper on the Bebeera Tree, its chemical composition, and its medical uses; and the nature of the alkali Bebeerine has been further elucidated by himself and T. Tilley, Esq. Professor of Chemistry in Birmingham, in a paper read before the Chemical Society.   The medical virtues of this alkali, or rather of its Sulphate, have been detailed by Dr. Maclagan, &c. in the Lond. and Ed. J. of Med. Science, July 1843 and April 1845.

" The bark of the Bebeera tree occurs in large flat pieces, is about four lines in thickness, heavy, and with a rough fibrous fracture, of a dark cinnamon-brown colour, rather smooth within, but covered externally by a splintering greyish-brown epidermis.   It has little or no aroma, but a strong, persistent, bitter taste, with considerable astringency.   These properties depend on the presence of an alkali, which has been called Bebeerine.   Dr. M. at first thought that there were two alkalis; but this, from his second paper, does not appear to be the case.   It is contained also in the seeds, as is evident from Dr. M.'s analysis of both the bark and seed.

	Bark.	Seeds.
Alkalis (not quite pure)	2·56	2·20
Tannin and Resinous matter	2·53	4·04
Soluble matter (Gum, Lignin, Salts)	4·34	9·40
Starch	0·	53·51
Fibre and Albumen	62·92	11·24
Ashes (chiefly Calcareous)	7·13	0·31
Moisture	14·07	18·13
Loss	6·45	1·17
	100·00	100·00"—P. 546.

Messrs. Maclagan and Tilley, to whom we are indebted for the investigation of this subject, observe that it is remarkable that Bebeerine should be isomeric with Morphia, which acts as a pure Narcotic.   The constitution of the two bodies is identical, and these gentlemen hence conclude " that similarity of physiological properties does not depend upon similarity in the properties of their constituents.   It seems probable that the mode in which their atoms are grouped has an important share in modifying their physiological actions."   The actions and uses of this new alkaloid are (at a most unusual length) described as :—

"Tonic, Antiperiodic, Febrifuge.   From the original experiments of Mr. Rodie, and those made with Warburg's Fever Drops, there was little doubt of the Bebeera bark being a powerful Antiperiodic.   These have been confirmed by the experi-

ments of Dr. Maclagan, and of Dr. Watt of George Town, Demerara, with the Sulphate of Bebeerine, and of Dr. Anderson and others at Kamptee, &c., in the Ague and Remittent Fever of India, by Drs. Bennett and Simpson, in Periodic Neuralgia. Dr. Christison has stated to the author that the Sulphate of Bebeerine has come into general use in Edinburgh as a Tonic and Stomachic, and also as an Antiperiodic, in the very same diseases and for the very same purposes, as Sulphate of Quinine, and that it appears not so apt to occasion headache. He had employed it in a very severe case of periodic Tic douloureux, and with complete success, exactly as if Sulphate of Quinine had been used. It is given in 2 or 3 grain pills every hour, or three or four times a day, according to the case, so that ℈j. or so, may be given before the accession of a paroxysm, or it may be given in gr. x. doses, morning and evening. Considerable improvement in the manufacture has been made by Mr. M'Farlane of Edinburgh, who now prepares it in considerable quantities for medical use in the form of the Sulphate of Bebeerine."—P. 547.

Although we own ourselves to be of the number of those who are slow to put faith in the alleged virtues of new remedies, we think there is already sufficient evidence in favour of the tonic and antiperiodic virtues of Bebeerine to justify more extended trials.

With respect to another new remedy, the Canabis Indica, we believe that the general opinion of those who have tried it, in this country, would be, that it has failed to justify the eulogiums with which it was introduced into British practice. As, however, its remedial virtues are still exciting considerable interest and attention, we extract the following account of the plant and the various preparations of it :

"CANABIS SATIVA and its variety *C. indica.* The Leaves and Resin of Hemp.

" The Hemp appears to be a plant of the Persian region, where it is subjected to great cold in winter, and to considerable heat in summer. It has thus been able to travel on one hand into Europe, and on the other into India; so that the varieties produced by climate have by some been thought to be distinct species, the European being called *C. sativa,* and the Indian *C. indica.* The name χαννάβις, by which it was known to the Greeks, seems to be derived from the Arabic *kinnub,* the *canape* of the middle ages, Dutch *kinnup* and *hinnup,* German *hanf,* whence the English *hemp.* Herodotus mentions it as Scythian. Biberstein met with it in Tauria and the Caucasian region. It is well known in Bokhara, Persia, and abundant in the Himalayas. It seems to have been employed as an intoxicating substance in Asia and Egypt from very early times, and even in medicine in Europe in former times, as we find it noticed in Dale (*Pharmacologia,* i. 133) and Murray (*Apparat. Medicaminum,* iv. p. 608—620), where it is arranged, as in this work, next to the Humulus. It has of late years been brought into European notice by Dr. O'Shaughnessy.

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" The Indian plant has by some been thought to be a species distinct from the European one; but, like Dr. Roxburgh and others, the author was unable, when in India, to observe any difference between the plant of the plains and that of the hills of India, nor between these and the European plant. The Indian secretes a much larger proportion of resin than is observable in the European plant, but a difference is observed in this point in India between plants grown in the plains, and those of the mountains, and also when grown thickly together. The natives plant them wide apart, to enable them to secrete their full powers. In Europe, the thick sowing, and moister, often dull, climate will prevent the due secretion of the peculiar principles of a plant of the Persian region. But the plants grown in the past season, from the great heat and light, ought to be

more resinous than usual. It is not without interest to observe that both the Hop· and Hemp, belonging to the group *Cannabineæ*, owe their properties to ·the glandular resinous secretions. The author, in calling attention to the uses· of this plant, in his *Illustr. of Himalayan Botany*, stated that ' the leaves are some-times smoked in India, and occasionally added to Tobacco, but are chiefly em-ployed for making *bhang* and *subzee*, of which the intoxicating powers are so well known. But a peculiar substance is yielded by the plants on the hills, in the form of a glandular secretion, which is collected by the natives pressing the upper part of the young plant between the palms of their hands, and then scraping off the secretion which adheres. This is well known in India by the name of *churrus*, and is considered more intoxicating than any other preparation of the plant ; which is so highly esteemed by many Asiatics, and serves them both for wine and opium : it has in consequence a variety of names applied to it in Arabic ; some of which were translated to me, as ' grass of faqueers,' ' leaf of delusion,' ' increaser of pleasure,' ' exciter of desire,' ' cementer of friendship,' &c. Lin-næus was well acquainted with its ' vis narcotica, phantastica, dementens' (ano-dyna et repellens). It is as likely as any other to have been the *Nepenthes* of Homer."*—P. 570.

Dr. O'Shaughnessy has described the different preparations as—1. *Churrus*, the concreted resinous exudation from the leaves, slender stems and flowers. 2. *Ganjah.* Bundles about 2 feet long, containing 24 dried plants, which have flowered, but from which the resin has not been re-moved. 3. *Bang, Subjee,* or *Sidhee,* formed of the larger leaves and cap-sules without the stalks.

" All these preparations are capable of producing intoxication, whether the *churrus* be taken in the form of a pill, or with conserve, or the dried leaf be rubbed up in milk and water with a little sugar and spice, or smoked. As a medicine, it was tried by Dr. O'S. in Rheumatism, Hydrophobia, Cholera, and Tetanus. In the last such marked benefit and cures were produced, that the Hemp was pronounced an Anticonvulsive remedy of the greatest value. Its general effects are, alleviation of pain (generally), remarkable increase of appe-tite, unequivocal Aphrodisia, and great mental cheerfulness. Its more violent effects were, delirium of a peculiar kind, and a cataleptic state. Dr. Pereira was among the first to submit it to experiment, but failed in obtaining any results, probably from changes having taken place in the drug. Dr. Laurie pronounced it uncertain, and not to be trusted to as a narcotic. Mr. Ley, however, found it useful in relaxing spasm, producing sleep, and during its action abatement of pain. Mr. Donovan found its power great in temporarily destroying sensation, and subduing the most intense neuralgic pain. Professor Miller, of Edinburgh, considers its virtue to consist in a power of controlling inordinate muscular spasm. Dr. Clendinning says that in his hands its exhibition has been followed by manifest effects as a soporific or hypnotic in conciliating sleep, as an anodyne in lulling irritation, as an antispasmodic in checking cough and cramp, and as a nervous stimulant in removing languor and anxiety. The Hemp may be used in the following preparations (Extract and Tincture) and doses: but Dr. O'S., when in England, found that he was obliged to give as much as 10 or 12 grains or even more : though in India he considered gr. $\frac{1}{2}$ a sufficient, and $1\frac{1}{2}$ gr. of the Extract a large dose."—P. 571.

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* " Dr. O'S. states that ' no information as to the medicinal effects of Hemp exists in the standard writers on Materia Medica to which we have access." It is only in the later writers it is omitted. Linnæus was acquainted with them, as the author quoted in the above briefly, as being a botanical work."

Whatever may be its virtue in other diseases of the nervous system, it has certainly failed most signally in all the cases of tetanus in which it has been tried in the London hospitals. And in several instances these trials were made with the extract prepared and brought to this country by Dr. O'Shaughnessy, and given, we believe, under his superintendence. The difference, therefore, in the effects of the remedy as exhibited here and in India, must, we think, be, in part, at least, attributed to difference of constitution, as the result of difference of climate. There are, it is well known, analogous differences in the effects of other narcotics.

We may refer to the article Cinchona for a specimen of Dr. Royle's ability and success in treating a difficult and complicated subject. The botanical account and commercial history of the various kinds of Bark, as well as their distinctive characters, though brief, are exceedingly luminous, and we believe as correct as the present state of our knowledge admits. But the brief paragraph treating of the action and uses of so important a remedy as Bark, is, we are compelled to say, in striking contrast with the other portions of this article. It could scarcely have been more meagre and unsatisfactory.

In the Animal Materia Medica there is nothing that appears to demand special notice. The volume, however, closes with a very useful Appendix, in which all remedies that may be used for the same therapeutical purposes are grouped together. To each group are prefixed some general observations on the nature and actions of the different classes of remedies. These the author states, in his Preface, should be read in connexion with the notices on the actions and uses of drugs at the end of each article. This division of his subject, the most important of the whole, it is very properly observed, would, if treated fully, require a volume to itself, and the apology for treating it so briefly, is the necessity for compressing the materials within the compass of a manual. But we cannot, after what we have already said, admit the apology. For valuable and useful as this Appendix is, it by no means atones for the seriously defective mode in which the therapeutic part is treated in the body of the work. Sixty, instead of thirty, pages might have been well devoted to this portion of the subject, and would have enabled the author, in some measure, to make amends for his one grand fault. But we should still have asked for more specific directions to guide the student in the use of particular remedies. To enable our readers to judge whether the strictures we have already made are rendered nugatory by the information afforded under the head of Emetics, we subjoin, as our last extract, the whole article.

"EMETICS.

" Medicines which evacuate the stomach by vomiting: an act produced partly by the influence produced on the stomach, and partly by that induced by the brain and nervous system. The latter we see in Sea-sickness, and the want of it in the difficulty with which Emetics act in narcotic poisoning, when the brain is in a comatose state. Emesis is also produced by tickling the fauces with a feather. Emetics differ much among themselves, some acting only when introduced into the stomach; others, as Tartar Emetic, if applied to any other part of the body, so as to be absorbed into the system. The effect is not altogether dependent upon the nature of the substance, for Ammonia and Mustard, which in small doses act as Stimulants, and Sulphates of Zinc and Copper as Tonics, will in

large doses evert the action of the stomach, and produce an emetic effect, generally quickly, and without debilitating the system. Others act more slowly, and produce long-continued nausea, with the depressing symptoms which accompany such a state, and which are known to favour absorption. These are, therefore, as well as from their slow action, not suited to cases of poisoning. With both the act is accompanied by a series of concussions which favour the excretion and secretion of the biliary, pancreatic, and intestinal fluids, causing a determination to the skin. But this very concussion makes them dangerous when there is a determination to the head, or in advanced stages of pregnancy, in hernia, &c. But it makes them useful before the accession of an Intermittent, also in bilious Fever, likewise in Asthma, Hooping-cough; or they may be used for merely evacuating the stomach.

"*Direct Emetics, acting quickly.*

"Ammonia Liq. 58. Ammoniæ Sesquicarb. Liq· 64 (f ℥ ss.—f ℥ j. of either taken in a glass of cold, followed immediately by some warm water). Sodii Chloridum, 96, or common Salt is usually readily available.

"Zinci Sulphas, 151. Cupri Sulph. 154. Cupri Ammonio-Sulph. 155. Ærugo, 157.

"Sinapis nigra, 274. S. alba, 276.

"*Indirect Emetics.*

"Antimonii et Potassæ Tartr. (Tartarum Emeticum, D.), 177. Vinum, 180.

"Antimonii Oxidum, E. 172. Sesquisulphuret. et Oxysulphuretum, 175, 176.

"Ipecacuanha, 433. Pulv. Vin. et Syr. 436. Emetine, 435. Viola odorata, 278.

"Scilla. Pulv. Tinct. et Syr. 594, 595. Asarum, 548. Euphorbium, 558, but is too acrid.

"Anthemis, Inef. et Dec. comp. 458.: assists vomiting.

"Tabacum, 518. Lobelia inflata, 467; but both are unsafe as Emetics.

"Ipecacuanha and Tartar Emetic are often combined together, or the latter may be prescribed with a Cathartic, forming an Emeto-Cathartic."—P. 675.

We cannot, however, conclude without expressing our warm approbation of the volume as a whole. It will certainly not detract from the author's high reputation. If we have expressed in very decided terms what we think is *the* defect of the volume, it is because we are deeply impressed with the importance of rendering every facility to both student and practitioner in the application to the purposes of daily practice of the information which treatises on Materia Medica are intended to convey, and because we have long felt it to be a crying evil that in such works, the therapeutic department should be neglected for mere chemical and botanical details. The author will, we are quite sure, add greatly to the obligations he has already conferred, if, in a future edition (which will undoubtedly soon be required), he will devote more space to the therapeutic department. We must not omit to observe that the utility of the volume is enhanced by an excellent Index. We have given a few of the drawings as a specimen of the excellent illustrative wood-engravings.

(Figure 64 is a representation of the Melaleuca Cajuputi; Figure 69 represents a specimen of Narthex Assafœtida, grown in the H. E. India Company's Botanic Garden at Saharunpore; Figure 78 of the Olea Europœa; and Figure 83 of the Hyoscyamus Niger.)

Fig. 64.

Fig. 69.

Fig. 78.

Fig. 83.

Bibliographical Notices.

I. Observations on Hydropathy, with an Account of the Princi-
   pal Cold Water Establishments of Germany. By *J. Stevenson
   Bushnan*, M.D.   12mo. pp. 170.   Churchill, 1846.

II. A Review of Homœopathy, Allopathy, and Young Physic.   By
    L. M. Lawson, M.D. Professor of General and Pathological Anatomy
    and Physiology in Transylvania University.   8vo. pp. 33.   Lexington
    U.S., 1846.

In the first of these works we have another example of a regularly-educated
physician coming forward as a warm advocate of hydropathy. As, however, he
resides in that town of baths, and general resort of dissipated idlers, Wiesbaden, he
is more excusable than are others nearer home.   If the dedication of his work to
Sir James McGregor, with the ardent hope that hydropathy will be introduced into
our military hospitals, is authorised, we are indeed surprised and grieved: we pre-
fer, however, until better informed, to regard it as a piece of gratuitous impertinence.
In the work we find nothing that has not already been stated upon the subject, the
author indeed, having himself had very little experience in this mode of treating
disease, seems to have collected his materials chiefly from the gossip of those he
met with, and books already published.
   The disposition to meet impostors half-way, and thus minister to the delusions of
the public, whether manifested by medical writers or medical reviewers, is a painful
subject of contemplation for the well-wisher of his profession. A degree of credu-
lity in the reception of statements is sometimes exhibited by medical men, which
certainly the better-informed of their patients are surprised at witnessing; and
assuredly never at any period of our critical career have we felt so forcibly the
urgent necessity of fortifying the minds of our students by careful preliminary dis-
cipline, so as to render them, when they enter their career of life, better able to
detect the fallacies which will beset them, and discern the path which professional
honor and the interests of mankind require them to follow.   Because a number of
chronic cases, frequently if not generally the consequences of idleness and debauch-
ery, have benefited by the employment of cold water, and the accompanying (fre-
quently the truly curative ones) conditions of its application, the means is forthwith
invested with all the dignity of a general method of cure, and received with more
or less favour, however empirically recommended, by certain members of our pro-
fession.   These gentlemen endeavour to salve their consciences by the statement,
that hydropathy must be employed as one of the instruments of medicine and by
legitimate practitioners, adding that, cold water has always been a powerful agent
in the hands of medical practitioners.   It has so, and although Currie's reports of its
efficacy by their exaggeration led much to its desuetude, yet it probably may be still
more extensively employed with advantage.   But does this furnish a reason or
excuse for writing books or articles communing with the public upon the matter;
or any pretext for sanctioning an extent of application implied by the erection of
special establishments ?   Is it not certain that in such, many must be the cases
treated with positive detriment to their well-doing, whether their treatment be con-
ducted by ignorant quacks, or by ci-devant practitioners converted into mere spe-
cialists ?   Will not the spirit of system induce many a rash experiment to be tried
which ought never to have been ventured on, and is not the list of such already

alarmingly large? We maintain that, in the presence of the prevalence of these systems of quackery, rigid abstinence from all means which may tend to their propagation is the bounden duty of every medical man; knowing, as he does, that however qualified his sanction might be, it would be received without its exceptions, and rendered the means of ensnaring numbers in proportion to the height of his reputation and the extent of his influence. The present co-partnership of regular practitioners, charlatans, amateur doctors and auto-doctors is mischievous and derogatory in the extreme.

Of Professor Lawson's *brochure* we can speak in the highest terms. It is a searching and unanswerable exposure of the fallacies contained in Dr. Forbes' pamphlet, commented upon in our last number. As several anonymous approvals from the United States of the doctrines advanced had been published, we are pleased to find so able a refutation from the pen of a well-known professor of that country. He adopts precisely the same line of argument we entered upon in the article alluded to, but with a degree of extension and illustration our space did not admit of. We have only room for one extract, but that is an important one.

" Dr. Forbes surely could not have perceived the full force and bearing of his opinions, nor the exact import of the denunciations of the regular practice ; otherwise, we are constrained to believe, his language and sentiments would have been more guarded, and less calculated to give offence to the profession and support to empiricism. We speak decidedly upon this subject, for we feel much : and whatever antithetical opinions we may express, must be ascribed to a strong sense of injustice, rendered peculiarly forcible by surrounding circumstances.

" The United States, however much we may admire its institutions and economy, must be regarded as the very elysium of quackery. Here, unrestrained, they assume an equality, and in point of law possess it, with the most enlightened and scientific ; and by fraud and deception too frequently triumph and grow rich, where wiser and better men scarcely escape starvation. It is no uncommon event to witness an outlandish homœopath rivalling whole communities of the most enlightened and worthy practitioners ; and this does not result from any defect of the common system, but depends more immediately on the gullibility of the world in general, and of our communities in particular. These practitioners, cunning and ever on the alert, have already seized on Dr. Forbes' concessions in favour of their success, and with triumphant jeers throw them into the very teeth of the regular school. The *steam-doctor*, and other grades of *botanical* practitioners (a class unknown in England), come in for a large share of glory, and these men, too, lug in Dr. Forbes' opinions to sustain their limber-jack, ricketty concern. The following language, extracted from an article just put forth, under the auspices of the Botanical Association, may serve to show the state of things.

' It has been clearly proved and admitted by the Editor of the British and Foreign Medical Review, that homœopathy has been quite as successful in the treatment of every variety of disease as the orthodox system, and although he does not admit its superior success, there are many practitioners who have tried both systems, and who confidently assert its superiority. If the old system, with all its resources, cannot confessedly accomplish more than a system which is considered entirely negative and void of effect, it is surely time that our Colleges were looking out for reform. As a pioneer in his cause, we hail the New Cincinnati School.'

" It may be said, however, that Dr. Forbes is not answerable for these results ; that he not only has the right, but it is his imperative duty to speak the truth, regardless of the sect on which he may fall most heavily. This may be ; but he has told not only the *truth*, but *much more* than the truth : and it is this superabundance of expression, and those ultra and unguarded opinions, that will work such unfavourable results for the profession. This ultra course will wholly fail to improve the profession, while it will do more to build up and sustain downright quackery, than half a century of labour by those friendly to these false systems. An opponent's favourable testimony is always laid hold of, and exerts unbounded influence."

LIEBIG'S QUESTION TO MULDER, TESTED BY MORALITY AND SCIENCE.
By Dr. *G. T. Mulder*, Professor of Chemistry in the University of
Utrecht.   Translated by Dr. *P. F. H. Fromberg.*   Octavo, pp. 122.
Blackwood, 1846.

IN another page of our present number we have endeavoured to do justice to
what we consider the undoubted merits of the celebrated Professor of Chemistry
at Giessen ; and much do we regret that so high a reputation as he has achieved
should be sullied by an overbearing and capricious conduct, which he is much
mistaken in thinking will be tamely submitted to.   As Editor of the now much
read "Annalen der Chemie und Pharmacie," he makes its pages the vehicle of
virulent abuse and unmitigated depreciation of every chemist, however celebrated,
who does not bow his head low to the despotism he believes his popularity has
enabled him to establish, or dares to express an opinion adverse to the main-
tenance of his autocracy.   And yet the views of this arch-philosopher are suffi-
ciently unsettled upon important subjects of investigation to have taught him a
more diffident mode of gainsaying those who differed from him.   Every one
must recollect what prominence he attached, in his first edition of the Animal
Chemistry, to the discovery of Protein by Mulder, the steps of whose analysis he
declared he had repeatedly verified.   Well: without a word of explanation in
note or text, the subject in the present edition is wholly passed over as if it had
never been mooted; and in the Annalen for Jan. 1846, he declares that that
which he some years since looked upon as a highly important discovery is *non
est inventus*, and coolly asks Mulder how he could possibly have ever believed in,
or can prove the fact of, its existence.   The present pamphlet is intended as an
answer to such question.   Its being asked at all seems to have arisen from the
fact of Mulder having, in his "Physiological Chemistry," ventured to doubt the
accuracy of some of the views of his former patron.   All became changed, and
Liebig says, in a letter to the author, he is content to take his share of the blame
for the adoption of the pseudo-discovery.   In the same letter (May 1846) Liebig
reminds him—

" ' If you look back a few years, you will find that I was the first to do justice (!)
to your researches on animal substances.   Your results had for years (!) been pub-
lished in Berzelius' work, and no person understood their meaning.   I still think
myself fortunate that it was I who first turned the attention of chemists and phy-
siologists to them.'

" How am I to understand this ?   *Liebig even now thinks himself fortunate* that
he has turned the attention of chemists and physiologists to results which are so
incorrect, (that is to say, *at present*, for before, *they had all been corroborated*,) that
most of them appear to be *false.*   The letter continued : 'What we want is not
supplied by your analyses, of which time will show that the greater part *(all* was
blotted out) are false.'   If the latter statement be true, what ground was there for
Liebig's happiness, because *he* had fixed the attention of chemists upon these *false*
results ?   Can it be called justice when *false* results are presented to the world as
accurate."—P. 38.

The question has furnished Mulder, in this his reply, an occasion for pre-
senting a very complete and yet succinct account of the chemical history of
Protein, which we recommend to the notice of such of our readers as are inter-
ested in the discussion.   It is difficult, indeed, to discover the grounds for Liebig's
change of opinion in the face of analyses so often repeated by various hands.
For our own parts, we have long been convinced of the soundness of the follow-
ing observation, made by Dr. Prout in the last edition of his Bridgewater
Treatise.

" An attempt has recently been made to show that albumen, fibrin, and casein

contain a certain common fundamental proximate element, to which the name of *Protein* has been given. That such a common proximate element may be derived from albumen, fibrin, and casein, is not denied. Viewed, indeed, in connection with organisation and life, the supposition that some common proximate element adapted for ulterior changes exists in animal bodies is very probable ; and accords well with the simplicity of natural operations. But that a substance obtained like protein by the rude and disorganising processes of common chemistry, should be that proximate element ; or that such a substance should ever be employed at all in vital operations without undergoing the preliminary assimilating processes, is more than we are at present disposed to admit."

This is to dispute the value, not the reality, of the substance obtained by Mulder. Liebig attributed formerly an exaggerated importance to that which he now declares he is unable to obtain !

CHEMISTRY OF THE FOUR SEASONS. An Essay principally concerning Natural Phenomena, admitting of Interpretation by Chemical Science, and illustrating Passages of Scripture. By *Thomas Griffiths.* Octavo, pp. 490. Churchill, 1846.

STIMULATED by the success which attended the publication of some lectures upon the " Chemistry of the Four Ancient Elements," which he had delivered before the Queen, the author, wishing to strike while the iron is hot, has brought out another work having the illustration of the Four Seasons for its object, also founded upon other lectures delivered to more miscellaneous and less august assemblages. We fear it is but a piece of book-making little likely to profit writer or reader. For those already acquainted with the mere elements of chemistry, it contains little or nothing new ; and for those who are uninformed upon the subject, and for whom it professes to be intended, it is too defective in the explanation and connexion of its illustrations to be even intelligible. An abundance of experiments are detailed, and with simplicity enough, and' we can easily believe in their exciting the admiring plaudits of the popular lecture-room : but the empty nature of any such exhibitions uncombined with detailed and methodical study of the subject is at once seen when publication of the lectures affords an opportunity of observing the absence of numerous connecting links. The book is utterly devoid of arrangement, so that the retention of the facts it deals with would be no easy matter for the novice. It is true they profess to be grouped according to their relations to the various seasons of the year; but the plan is necessarily very imperfectly carried out ; and much that is stated under the head of Spring might just as advantageously be placed under that of Winter or Summer, and *vice versâ.* The only work we are acquainted with for *teaching* the elements of chemistry, that deserves the name, is Mrs. Marcet's Conversations, which indeed well merits the popularity it has obtained.

We cannot, moreover, compliment our author upon his repeated introduction of quotations from Scripture, frequently, too, bearing the merest, if any, reference to his subject. We are willing to believe that he is a sincere admirer of the marvels of the Creation, for a poor chemist must he be who is not, but the continual expression of wonderment, and the terming every natural phenomenon " miraculous," do not convey the impression to the reader he doubtless intended they should.

THE USE OF THE BODY IN RELATION TO THE MIND.   By *George Moore*, M.D., &c.   Small 8vo. pp. 431.   Longman & Co.: London, 1846.

Two years ago Dr. Moore published a work, entitled, "The Power of the Soul over the Body," which was so well received by the public as to have reached a third edition. Doubtless he has been thereby encouraged to try his fortune once more upon a kindred subject. Whether he will succeed as well this time, seems to us very problematical. His object, indeed, is a good and creditable one ; to show that the study of physiological science ought to be but one of the avenues to that shrine where alone is to be found that highest and best wisdom, which teaches us our duties not only to ourselves and to others, but also to Him, in whom "we live, and move, and have our being." But many of the topics, selected by the author for exposition or illustration, are so mystical in character, and withal there is such an utter absence of the *lucidus ordo* in their handling and arrangement, that we feel ourselves utterly unable to give any correct idea of the contents of his present work, except by selecting a few passages from different chapters, and leaving the reader to form his own judgment. Here is a specimen of Dr. Moore's physiology :

"The first visible germ of the human body is an opaque spot $\frac{1}{300}$ of an inch in diameter, within the germial vesicle or egg, which is $\frac{1}{60}$ of an inch in diameter. This germ is the commencement of the whole body. Several corpuscles of the mother's blood are acted on at the same time, and caused to arrange themselves, or their elements, so as to form a new being. There is something in this germ which attracts to itself the materials of which all parts of the mature animal are formed. The germ, then, must contain the power which causes growth, the force which ultimately constitutes the power of the whole body. The development of form is but the manifestation of an inherent power, which, under favourable circumstances, produced by the same might, works out the idea of God in the plan of each creature. Thus the human germ cannot be developed into anything but a human body. It is the microscopic concentration of forces, which, under suitable conditions provided by the creative Mind, becomes the full-grown being. In its first beginning, it is but as an atom of dust moved by the breath of God ; in the end, the residence of a distinct spirit, capable of enjoying the attributes of the Infinite. These are facts, not opinions."—P. 9.

Dr. Moore appears to hold strange, but certainly very comfortable, notions respecting the absence of physical suffering in certain of the lower tribes of animals : ,

"However our reason and experience may incline us to think of specific organisations, our reflections on instinct would lead us to a very consolatory conclusion, because it indicates the incessant and boundless benevolence of God. All creatures purely instinctive, such as insects, appear to me to be incapable of positive pain, but abundantly endowed with the capacity of pleasure. Their every action results from direct impression, so as always to be accompanied by a feeling of enjoyment, or a sense of doing what is desired, the desire, the action, and the exciting cause of the action, being connected without interval, and without comparison. Thus an insect, although cut in two, will seize its food with avidity."—P. 62.

Dr. Moore is a half-and-half believer in Mesmerism, which, he declares, "is not a whit more puzzling than many common things in Natural History." Subsequently he remarks, that "the inductive experiments of Baron Von Reichenbach* leave us now but little room to doubt that Animal Magnetism is a natural

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* For an account of these experiments, see the *Medico-Chirurgical Review* for July of last year.

truth of great value and importance to society, notwithstanding the egregious
extravagancies of fancy which have disfigured its history as a science."

The following passage, which contains, nevertheless, some food for not unpro-
fitable reflection, inevitably reminds the reader of an early chapter in the history
of Tristram Shandy.

" Our education also, may be said to begin with our forefathers. The child
of the morally instructed is the most capable of instruction; and intellectual excel-
lence is generally the result of ages of mental cultivation; but degeneracy is
most marked at both extremities of society, the highest and lowest classes are
those worst educated, both morally and physically speaking. It appears from
the examination of juvenile delinquents at Parkhurst by Mr. Kay Shuttleworth,
that the majority were found deficient in physical organisation, and this no doubt
was traceable to the parent stock. S. T. Coleridge said that the history of a
man for the nine months preceding his birth would probably be far more in-
teresting, and contain events of greater moment than all that follow it. Southey
fancied Coleridge was not in earnest in uttering this startling sentence, but per-
haps the words convey too profound a truth for the doctor's former vision.
Their meaning will shine out if we reflect on the influence which the mother's
and even the father's habits exert on the constitution moulded in *utero.* There
the ground-work of all history is laid in embryo, and the seeds of evil there
begin to take root, and to vegetate in a genial soil long before they open their
leaves to the sky. The soil, indeed, alters not the nature of the seed, but vast
is its effect on developement, and no one can doubt that the state of the parent
determines, in a large measure, the predisposition of the offspring, for predis-
position, in fact, signifies only bodily aptitude."—P. 97.

There is a curious metaphysico-physiological chapter on " Light in relation to
Life." Here is an extract from it :

" We possess proof of the astounding fact, that solar light causes a regular
succession of movements in the medium through which it passes, to the amount
of five hundred millions of millions in a second; and it is because this vibration
acts upon something in our brain capable of vibrating in a corresponding ratio,
that our souls are put in such relation to light that we can enjoy vision. The
time of different colours, however, is not the same; our sense of sight is affected
by red 458 millions of millions of times in a second ; by violet, 727 millions of
times; and by yellow, 542 millions of millions of times in a second. Of course,
therefore, different colours differently affect our souls. Throughout nature,
these undulations of light are so modified as to be productive of a vast variety
of enjoyments to various creatures, and to operate in such a manner upon their
nerves and faculties as to guide them to the fulfilment of those desires which
colour and shape contribute to excite."—P. 170.

The following remarks on the newest charlatanery of the day—practised al-
though it be, we regret to say, by several members of the profession, and even
smiled on by one of our cotemporaries in medical journalism—are judicious, and
will recommend themselves to the good sense of the reader.

" The benefit of habitually abstaining from *artificial* stimulants can scarcely
be better expressed than it has been by some sudden converts to a simple regi-
men in the name of hydropathy. From their rapturous language, describing
their delights in the feelings of a new kind of life and vigour, one might sup-
pose them to have just escaped the misery of a depraved existence, and to have
found themselves, unexpectedly, in some poetic paradise. But there may be
intemperance even in the use of water. The ecstasies of hydropathic converts,
however, is due as much to excess of enthusiasm as to excess of drinking. Ac-
tive exercise in fresh air, and a free use of cold water, constitute a plan which
every savage, unbewildered by quackish mysteries, knows to be wisest, dis-
creetest, best for securing the blessings of bodily health. But let moderation be
known in all things, and despise not the wisdom of Solomon who tells us that

wine has its uses, and strong drink is more suitable than cold slops and wet sheets for a man with a flagging pulse and a sinking heart. A deluge not only renovates, but also destroys; and the Maker of man never designed him to be amphibious, nor to keep his functions in forcible action, like a water-mill under a constant stream, but to enjoy life under a wise use of all that is good, since obedience to Divine law allows of no extremes; and temperance implies *in mediis tutissimus*—an equal danger both from abstinence and excess."—229.

The Potatoe Plant, its Uses and Properties ; together with the Cause of the Present Malady. The Extension of that Disease to other Plants, the Question of Famine arising therefrom and the best Means of averting that Calamity. By *Alfred Smee*, F:R.S. Octavo, pp. 170. Ten Lithographs. Longman 1846.

The dreadful visitations termed Famines, arising from the deficiency of some staple article of food, have been of too frequent occurrence in the past history of Europe, and happen still too often in India, to allow of surprise being mingled with the commiseration excited. Vicissitudes of season, neligence of culture, the ravages of insects, or the devastations produced by warfare, have, in the different cases, afforded obvious enough explanation of the calamity. But the destruction of the Potatoe, has not only proceeded with a fearful rapidity and universality, but it has been accomplished by causes which have eluded observation, and which, so far from yielding to the various precautions that have been suggested, seem now to be operating with increased intensity and over a wider sphere. Appearing first at Courtraî at the end of June 1845, the disease rapidly spread over the rest of Belgium and thence into and throughout France and Germany The counties opposite the mouth of the Thames were those which first suffered from its ravages in Britain, but others soon became involved, and by September and October, it had extended through Scotland and Ireland. The loss of the crop, vast in 1845, became doubled in 1846, and the prospects of the next year are still more gloomy, and even the extermination of this valuable tuber is looked upon by some alarmists as impending. In such a state of things it is not surprising that the attention of the chemist, the naturalist, the agriculturist, and the political economist in every country of Europe should be directed to the investigation of the etiology of this singular malady, and the means of averting its ravages. Mr. Smee, however, believes that the *surgeon* is the person more especially likely to elucidate the mystery.

"The investigation into the nature of a universal disease among organic bodies belongs especially to the practical surgeon. He is investigating disease in every hour of the day, and every day of his life. He is accustomed to weigh the various difficulties which arise in the investigation of a complex organic body ; and on that account he is peculiarly suited for the discovery of the cause of a universal malady. The disease in the plant is a death of the vegetable tissue, and the question of life and death especially pertains to the business of a surgeon.
*   *   *   *   *   *   *
The business of a surgeon is essentially locomotive, and his duties are practised over an extensive space. It frequently happens that I have to traverse London in two or even more directions in a single day, which circumstance has given me abundant opportunities of making my observations in different localities. Moreover, during the summer months, I was living at Springfield, Upper Clapton, where I had the advantage of a large garden, wherein were several plots of potatoes, which I was in the habit of observing the first thing in the morning, and again on my return from London, and frequently the last thing at night. In

the neighbourhood, moreover, were large potatoe grounds, where I used to enjoy the air, and study the disease in the evening ; and it has curiously happened, that I have made my observations on the potatoe plant in the same garden in which I conducted the experiments for my former work on ' Electro-Metallurgy,' "—P. 11.

We must confess that this statement (which we fear some of our country readers will think savours somewhat of Cockney-land) does not at all convince us that this subject of investigation falls legitimately within the sphere of the surgeon or physician. When we consider that the man engaged in active practice is even incompetent to . minute investigation of the causes and nature of the diseases of the human frame, and is chiefly occupied in following out indications furnished him by the laborious enquirers who devote themselves to such pursuits, we can easily see his utter unfitness for pursuing a train of enquiry which demands . complete information in several branches of knowledge which he could only have acquired at the expense of others of a more practically important character. However this may be, we cannot congratulate Mr. Smee upon having discovered any efficient cause of this terrible malady. He believes this to be induced by a species of *Aphis*, "which punctures the leaf, sucks the sap, and destroys the relation between the leaf and the root, thus causing the leaf or some other part of the plant to become gangrenous, or in other words to die." He states that, in the potatoe grounds alluded to above, he observed multitudes of this aphis, which, from its presumed ravaging powers, he terms *Vastator*. The conferring a new name for hypothetical reasons upon a species, which he states to be identical with the *Aphis Rapæ* of Curtis is quite unjustifiable, and must be protested against, for if such a practice were generally followed, endless confusion in the study of Natural History would result. When we consider the multitudes of blasted potatoe plants which have been examined in all stages of the disease by competent observers without their presenting any traces of this insect, as also its *comparatively* innocuous effects npon the various other vegetables it infests, it at once becomes evident that Mr. Smee has fallen into the too common error of mistaking a coincidence, or perhaps even an effect, for a cause, and consequently has thrown no useful light upon this obscure subject. His work, however, contains a good account of the Potatoe as an article of diet, which has been compiled with great care and will be read with interest and advantage.

NOTES ON THE EPIDEMIC CHOLERA. By *R. Hartley Kennedy*, M.D. &c., late Physician-General and President of the Medical Board, Bombay. Second Edition, revised. Small 8vo. pp. 279. London : Smith, Elder and Co. 1846.

THIS is a mere reprint of a work that was published upwards of twenty years ago. Dr. Kennedy tells us that, being retired from professional life, he can have no personal object to gain by re-appearing before the public, save the wish to be of service to the profession generally, by making them acquainted with his views on the pestilence of India which seems to threaten a re-invasion of Europe. This can be the only plea (if indeed it is one) for the utter omission from its pages of all new matter. There is not so much as a passing allusion to what has been said or written on the subject, since the date mentioned ; so entirely enamoured, we suppose is Dr. Kennedy with his own views and opinions.

Dr. K's theory of Cholera may be gathered from the following passage :—

"I consider a nervous derangement, similar to concussion of the brain, to be the disease, how induced I know not, following the above inexplicable shock sustained by the constitution; and the collapse and spasms to be symptomatic of the disorder of the brain; and finally, I consider the purging and vomiting

to be 'no part of the disease, but the struggle and effort of Nature to relieve the constitution, and cast off the noxious principle which is destroying it. For the treatment of such a disease, the indication is distinctly apparent to relieve the brain by bleeding, and to induce the sanitary process of vomiting and purging where they do not exist, or to moderate them when violent."—P. 57.

He considers Cholera to be quite as infectious as Small-pox or the Plague !

" However aware I am of the delicacy of the ground on which I have advanced, and however strongly sensible that nothing would give me more sincere happiness than to be able to change the opinion I entertain, I am under the necessity of ending this part of the discussion with observing, that to the best of my judgment, I know no character belonging to any contagious disease which Cholera does not appear to me to possess; and that, if it be not contagious, I know no other disease which I should be inclined to consider so."—P. 75.

Dr. K. regarding the vomiting and purging (more especially the former) to be, primarily, only sanitary efforts of Nature to relieve herself from the prostrating enemy that she has to contend with, wisely cautions his readers not to seek to check these evacuations at once by powerful astringents and sedatives. He is favourable to the use of Emetics, and also of mild Purgatives in combination with opium and other means; bleeding having been premised in the beginning of the attack. His favourite formula was the following :—

" I mingled of castor-oil and honey each six ounces ; tincture of opium, twelve drachms; and camphor mixture, ten ounces and a half. For the pills, I powdered three ounces of camphor by friction, adding the necessary small quantity of spirit of nitric ether in lieu of common alcohol ; then dissolving two ounces of gum opium in tenacious mucilage of acacia gum, I had the whole effectually beaten into a mass, and divided into 480 pills, each of course containing three grains of camphor and two of opium.

" The directions were, that the patients, as soon as they were attacked, should be made to drink plentifully of hot water, which being vomited up, and the irritation of stomach for a moment relieved, two ounces of the mixture were to be administered; if sickness returned, a copious draught, or at least a pint, of warm infusion of the toolsee (Ocimum gratissimum), an herb always at hand as the sacred plant of the Hindoos, should be given. This infusion was generally at first vomited up ; but the second draught, if it did not allay the sickness, always came up with less of pain and spasms. One of the pills was then to be given, and, if vomited up, to be repeated after each vomit. When the stomach was soothed by the pills, and, one ghurry after the last vomit, a second dose of two ounces of the mixture was to be administered, and the patient was permitted to quench his thirst, or allay the burning heat at the stomach, by drinking equal parts of milk and thick rice-water cold ; after which, in ordinary cases, the patient would sleep. If these did not, however, give relief, but the vomiting continued, they were directed to apply scalding water to the scrobiculous cordi, so as to raise an instantaneous blister."—P. 232.

THE MICROSCOPIC ANATOMY OF THE HUMAN BODY IN HEALTH AND DISEASE. Illustrated with numerous Drawings in Colour. By *Arthur Hill Hassall*, Author of a " History of British Freshwater Algæ," &c. Part V. London : Samuel Highley, 1846.

THE author has cancelled some of the earlier plates, in which, owing to some mismanagement in striking them off, bad impressions were obtained; more attention has also been paid to the colouring. These are great improvements, and have added to the utility of the work. The Part just published (December) contains a very accurate account of the chemical and microscopic qualities of the

milk, embracing the observations of Simon, Henlé, Donné, and other authorities; and illustrated by original drawings of human milk and colostrum. The seminal fluid is also described, and two figures are given showing the seminal granules and spermatozoa. When completed, the work will be of much service to those who are commencing the study of microscopy, affording a concise descriptive account and illustrations of the several fluids and tissues of the animal body.

THE HANDBOOK OF HUMAN ANATOMY, GENERAL, SPECIAL, AND TOPO-GRAPHICAL. Translated from the original German of Dr. *Alfred Von Behr*, and adapted to the Use of the English Student by *John Birkett*, Fellow of the Royal College of Surgeons of England, and Demonstrator of Anatomy at Guy's Hospital. London : Longman & Co.   1846.

THE handbook of Dr. Von Behr belongs to a class of works for which we must confess we have little affection ; in which the ingenuity of the author is taxed rather to contrive how he may best meet the desires of idle students, than in advancing the science of anatomy. The author disavows such an object, and we have no reason to doubt his sincerity ; but still the general tendency of these meagre manuals is to encourage a superficial taste in a case where full and complete knowledge is pre-eminently demanded. We regret that we should have occasion to make these remarks, because the volume before us contains much valuable matter ; and particularly because the plan of the work, embracing general, special, and topographical anatomy, is excellent. Such a work, judiciously executed, would be a boon to the medical student ; and this hand-book, if it were somewhat amplified, would have been just the thing that is required at the present moment.

The details relating to structural anatomy, as might be expected in a work emanating from Germany, form the most valuable part of the treatise ; and the most defective section is that on the topographical anatomy. Mr. Birkett has, indeed, by his notes, greatly improved this part of the text ; and we only regret that he did not furnish a larger portion of information, as there is no branch of anatomical science that has been more successfully cultivated in this country, or is more attractive to the student.

Although there are the drawbacks we have noticed, the hand-book of Dr. Von Behr will assist English students, especially in that department, minute anatomy, which at present is often neglected ; and with this conviction we recommend this manual to those for whose use it is more particularly designed.

PRINCIPLES OF HUMAN PHYSIOLOGY, WITH THEIR CHIEF APPLICATIONS TO PATHOLOGY, HYGIENE, AND FORENSIC MEDICINE. By *William B. Carpenter*, M.D., F.R.S. &c. Third Edition. London: John Churchill, 1846.

IT is satisfactory to find, by the appearance of a third edition of this standard work, that the science of physiology, and its inseparable adjunct, minute anatomy, are now studied in our schools on philosophic principles. Whatever may have been the doubts in some quarters concerning the utility of microscopy, they must have yielded ere this before the accurate and great results that have been secured by the labours of English and Continental observers. Structural anatomy and organic chemistry, it is apparent, are the principal means by which further progress is to be attained ; and this indeed might be inferred by the

history of all other similar branches of enquiry. We have reached a point in human anatomy, at which all that can be studied by the unaided eye, has been well nigh exhausted; so that, unless other, and more subtle, methods of research be devised, we must be content to halt in the path of discovery. If any other proof were required of the position here assumed, it would be amply furnished by the volume before us. Dr. Carpenter, himself a most successful microscopist, has collected together a vast amount of valuable facts, which, combined with chemical analysis and comparative anatomy, constitute the basis on which these philosophic "principles" repose.

As we have on a former occasion (see Med.-Chir. Review, No. II. April 1843) noticed at some length Dr. Carpenter's work, we shall merely now state that by a revision, which bears in every chapter the impress of great research and great judgment; and by the addition of new matter to the amount of at least a hundred pages, the author, without augmenting either the bulk or the price of the volume, has enriched it by the most important of the numerous contributions which have been made to Physiological Science within the last two years. It is not the student alone who requires the aid of a work at once so recondite and lucid as that before us; the practitioner, in those obscure cases, implicating important organs, and so often recurring, will in these pages find the means for forming a correct diagnosis, and consequently, for arriving at a rational mode of treatment. With these convictions, we urgently advise our readers to add to their libraries this last and extended edition of Dr. Carpenter's Principles of Physiology.

TRANSACTIONS OF THE MEDICAL AND PHYSICAL SOCIETY OF BOMBAY.
For the Year 1844.

THIS Number contains papers by Messrs. Murray, Hunter, and Impey, and by Drs. Arnott and Morehead, the latter gentleman (as on some former occasions) contributing more than one-half of the whole matter. His situation in the European General Hospital at Bombay, affords him an extensive field for observation, and no zeal is wanting on his part to turn his opportunities to good account. His zeal in prosecuting the morbid anatomy of intertropical diseases is most meritorious.

From his paper on the "Pathology and Treatment of Dysentery," we select the following passage bearing upon the important point as to the connection of this disease with Hepatic Suppuration—a subject that has been repeatedly brought under the attention of our readers in recent numbers of this Journal.

"Complication with abscess in the liver constitutes a great proportion of the fatal cases of chronic dysentery, and in such the dysenteric symptoms are not unfrequently in no respect more urgent than in cases which without this complication do well. They may indeed even improve for a time but they do not so steadily, and the increasing emaciation and languor are greater than the degree of the dysenteric symptoms can satisfactorily explain. If, under these circumstances, we detect an evening febrile accession, there are very good grounds for suspecting that abscess has either formed or is forming in the liver, very shortly to become evident by the usual symptoms of uneasiness of the right side, followed by distinct fulness and tenseness at the margin of the right false ribs. A reference to the series of cases published by me in this No. of the Society's Transactions and elsewhere, will show very distinctly that ulceration of the large intestines and abscess in the liver are very often found co-existing. In one set of cases, those ranged by me under the head of dysentery, the affection of the bowels was the primary and prominent disease, that of the liver coming on more or less obscurely as a secondary event. In the other set, the symptoms of

hepatitis were the primary and most prominent, those of ulceration of the bowels succeeding and being often not very clearly indicated. But to infer from these facts that the diseases bear to each other the relation of cause and effect, though a plausible enough inference from the exclusive consideration of their morbid anatomy, is untenable as a general proposition.—for it would be to generalise from the fatal cases only, and to leave the successful ones out of account; or to express it otherwise, it would, in the data before us and on the assumption, not a correct one, that in every fatal case of dysentery there was abscess in the liver, be to deduce a general law from 18 per cent. though opposed by 82 per cent. Nor is the force of the statement materially lessened by the admission, which may be made, that it is probable enough that, in some of the successful cases of dysentery, symptoms of hepatic inflammation may have occurred and been subdued, and, in the successful cases of hepatitis, dysentery may have threatened and been averted—for I can state very confidently that this, though occasional, has been by no means a frequent occurrence."

The following remarks on the Calomel and Opium treatment of Dysentery deserve notice:

" The treatment of dysentery by large doses of calomel repeated and continued for some time, on the principle that such doses have a sedative action on the inflamed mucous coat, does not I think at present find much acceptance in practice in this part of India; and I believe that it may fairly be assumed that a system of treatment strongly recommended and at one time generally followed, as this has been, would not have fallen into disuse, unless the expectations formed of its efficacy and applicability had led to disappointment. On this principle I would explain the comparative infrequency of the treatment of dysentery by large doses of calomel repeated and continued for some time. My own belief[*] is that as a general system of treatment it is inappropriate and very often very injurious."

How comes it that our friends in the East are so tardy in their movements? We did not receive this number, published it is stated in the title-page in 1844, until three months ago.

A Tabular View of the Physical Signs and Diagnosis of the Diseases of the Lungs, with a Synopsis of the Signs which occur in each Disease. By *James Turnbull*, M.D. Physician to the Liverpool Northern Hospital.

This tabular view affording a *coup-d'œil* of the various auscultatory, &c., phenomena discoverable in health and disease will prove useful to many, practitioners as well as students, in their investigation of thoracic maladies. We should have liked it better if the rational or subjective symptoms of each had been given at the same time, and if a place had been found for diseases of the Heart, as well as for those of the Lungs.

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[*] " In the latest works on Materia Medica, the sedative action of large doses of calomel is assumed on the authority of Tropical practitioners. This is not the place to discuss the general question, nor am I prepared to do so, but I may say that I am not convinced that large doses of calomel possess such action independent of the opium with which they may be combined, and I doubt whether the question ought to be considered as one settled."

Periscope;

OR,

CIRCUMSPECTIVE REVIEW.

Selections from the Foreign Periodicals.

ON THE RETROSPECTIVE SEMEIOLOGICAL CHARACTERISTICS PRESENTED
BY THE NAILS. By J. BEAU, M.D.

IT is familiarly known that, after certain diseases, as severe fevers, the *nails* are
sometimes cast, as well as the hair. They are reproduced when the unguinal
matrix resumes its secretory functions, and, after a certain time, the new nails have
acquired the same form and consistence as the old ones. But less severe dis-
eases, which do not lead to the actual shedding of the nail, may yet interfere
with the secretory function sufficiently as to leave marks of their existence by
certain traces on the nails. These are found in the form of furrows or depres-
sions placed transversely on the back of the nail. They vary from the slightest
depression to one which nearly occupies the whole substance of the nail. They
are found larger upon the thumb than upon the finger nails, and sometimes it is
upon these alone that their traces are to be discovered. They are of varying length
and breadth. They will be found at different points of the nail according to the
space of time which has elapsed since the occurrence of the malady. To ascer-
tain this with exactitude, the rate of growth of the nail must be observed, which
may be done by imprinting upon it an indelible mark, and observing how much
this advances towards the free edge of the nail in a given time. Experiments of
this kind show that the nails of all the fingers increase a millimetre ($\frac{2}{5}$ of a line)
per week; while the nails of the toes only grow thus much in four weeks. From
this we may see that the thumb-nail, which, in an adult male is about 20 milli-
metres long, inclusive of the portion concealed in the matrix, requires 20 weeks,
or 5 months, to perform its entire evolution, while that of the great toe, which
averages about 24 millimetres, requires 96 weeks, or two years, for the same pur-
pose. This law of increase is the same in health and disease, and growth differs
only in the latter in the less abundance of the materials which are deposited.
The furrows may be solitary, or, if there have been other illnesses, two or three
are found upon the same nail, separated by more or less considerable spaces.
As *typhoid fever* is a disease which may lead to a complete shedding of the nails,
so also it is the chief of those in which these furrows are found. To this we
may add the various pyrexiæ and phlegmasiæ; and all affections in which the
reparative and assimilatory powers are suspended or notably diminished—espe-
cially when in such febrile affections are present. They are observed, also, after
the operation of various moral causes which have markedly influenced the diges-
tive functions. The few days' abstinence after parturition frequently suffice to
leave traces on the nails. Of course the grooves are deep only in proportion to
the gravity of the affection, and unless a slight attack appear very suddenly, the
edges of the depression will be scarcely perceptible.

As we have already noticed, it is upon the thumb and great toe nails we must
search for these furrows; as, when existing, they are always found on these, and

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often upon them alone. To estimate the time which has elapsed *since the occur-rence of the disease* giving rise to the furrow, we must count as many weeks as there are millimetres between the furrow and the posterior margin of the nail, bearing in mind that this is hidden to the extent of 3 millimetres by the epider-mic fold which bounds the nail behind. These furrows of the thumb-nail, how-ever, can never furnish the indications of a disease having existed for a longer period than 5 months prior to the examination, but those of the great toe will furnish such as far back as two years—each millimetre there representing a month —its posterior border being, however, hidden by the epidermis to the extent of 5 millimetres. The *breadth* of the furrow indicates the *duration* of the disease, a millimetre expressing a week or a month, according as a thumb or a great toe-nail is examined. If the disease has continued for less than a fortnight, and has only been slight, it leaves scarcely any traces on the toe-nail. Even the mode of the *invasion* and *termination* of the disease may be established ; for, if we find the edges of the furrow of the thumb-nail are sharp and decided, we know it has appeared and terminated suddenly, while, when this is not the case, the transition from health to disease has been gradual—always remembering that the anterior edge of the furrow is that which indicates the commencement of the disease, and the posterior one its termination.

It is not pretended that every acute disease must infallibly furnish these fur-rows. Exceptions do occur, but in spite of such, we believe these researches are sufficiently interesting to call for publication. In verifying them, practitioners will often observe with what extraordinary precision they can recognise the ex-istence and circumstances of a past disease, to the utter astonishment of the patient. The study is therefore useful in a semeiological point of view, as it may also be in those cases of legal medicine in which it is the interest of an accused person to deny the former existence of disease. *Riel*, in his *Memorabilium Clini-corum*, notices the occasional formation of a white semicircular line after severe fever.—*Archives Generales*, T. xi, pp. 447–458.

BLISTERS IN CONFLUENT SMALL-POX.

M. Piorry has for some time past derived great assistance from the use of blisters as a means of preventing the scarring of the face by the cicatrices of confluent small-pox. The pus, retained so long in contact with the tissues, and altered in character through the agency of the air which passes through the pustules by endosmosis, operates extensive local destruction, and proves very injurious to the system when re-absorbed. Various practitioners have proposed measures for obviating this inconvenience, as by cauterisation of each pustule (impossible in the confluent disease), the opening them by scissors, needles, &c. Experience, however, shows that over such means the blister has the advantage of—1, opening at one time the whole of the pustules over which it is applied: 2, evacuating their entire contents, and preventing the consequences of the sojourn or resorp-tion of pus: 3, counteracting the attendant erysipelas, by diminishing the swelling; and 4, causing the scabs to fall much sooner from the face than from other parts of the body. It has an advantage over mercurial plaisters in not risking the ex-citement of salivation, the extent of evil which results from its use being a slight ischuria. The various plaisters applied as abortives in this disease have too been reproached with exerting a repellant action, and directing the morbid action upon the brain and its membranes. A blister, on the contrary, rather acts as a deriva-tive.—*Gazette des Hôpitaux*, No. 101.

[Our neighbours have shown a laudable anxiety for the discovery of the means for the prevention of the hideous mark of the small-pox, once so common, now so

rare. The very rarity of the occurrence has, however, led too little attention to be paid amongst ourselves for its prevention. We think M. Piorry's practice well worth a trial.—*Rev.*]

HARDEN ON ISOPATHIA.

Dr. Harden of Liberty County, Georgia, has resumed (in the July Number of the *American Journal of Medical Sciences*) his observations upon *Isopathia* (that is upon diseases of identical nature, although presenting different external appearances), which we gave an account of in a former number (July 1845). He prefaces them with some strictures upon the existing systems of *Nosology*, as being too exclusive. The *etiological method* of Boerhaave and Hoffman is only applicable to such diseases whose causes are known—while identical diseases may be brought on by very different general causes acting upon a system with a certain predisposition which is not understood. So, in regard to the *symptomatological system* of Cullen, Sauvages, &c. many diseases distinct in their nature, when seated in the same organ, will manifest symptoms so identical as to mislead the wisest. "The same objection applies with still greater force to the *functional* or *physiological* plan of Dr. Good," and the *tissual, organic* or *topographic* system of Bichat, more or less embraced by Broussais, Bouillaud, &c. The localisation of all essential disease, in referring it entirely to an altered vital action, without regard to the mechanical or chemical actions of the system is necessarily defective. "As the same morbid action may attack different tissues or parts of the body, so it is equally true that different morbid actions may attack the same tissue or part of the system; and, although pathological formations or types are slightly different in various parts of the body, as is the case with animals or plants in different climates or soils, yet the species is invariably and always to be recognised."

Pathological Anatomy originating with Bonetus, Valsalva and Morgagni, and advanced by modern labours, such as those of Laennec, Cruveilhier, Hope, Carswell, &c., has better claims than the preceding systems, but still is defective. "*Pathological anatomy* is not *pathology*, the lesions *left after death are not disease*, but simply the effects of the morbid action which had been going on in the system during life, and should be considered as nothing more than a kind of special symptomatology." The revival of the *Humoral Pathology* under the auspices of Andral, Liebig, Dumas, Prout, Müller, &c. gives rise to the hope that disease will ere long be brought within the range of physical laws, and be treated upon physiological principles.

"The question now comes up, by what method are we to distinguish and classify diseases? Our answer emphatically is,—by a rightful combination and use of all the methods that have been passed in review, so far as they may be applicable to the case before us; by an investigation of the *causes*, so far as they may be known to us, whether predisposing or exciting; by a careful observation and comparison of *symptoms*, as they present themselves in connection with their *seats* or *organs*, whose functions may be disturbed during the progress of the disease; by a critical inspection of the *lesions* which may be presented after death; by an examination of the state of the *blood* or *other fluids*; and, lastly, by all those collateral aids which may be afforded by the *history* of the disease, and other circumstances alluded to in my former paper."

In the paper referred to Dr. Harden had, with the object of tracing the isopathic connection of various diseases, divided these into certain generic types; viz. Febrile, Inflammatory, Purulent, Tuberculous or Strumous, Scorbutic or Hæmorrhagic, Exanthematous, Hydropic, and Gouty or Podagric Types. In the present paper, of these, the Inflammatory and Purulent Types are treated of a

considerable extent, with great lucidity and comprehensive power. The limited space we have at command quite prevents our doing justice to so elaborate a communication; and we prefer, therefore, deferring any notice of it until another opportunity, or until the completion and re-publication of the series of papers. We feel obliged by Dr. Harden's frequent and complimentary allusion to the *Medico-Chirurgical Review.* No exertions on our part will be wanting to furnish him and our other readers with an accurate and complete view of the progress of medical science.

M. Malgaigne on Simple Inflammation or Pseudo-Strangulation of Hernias.

According to Boyer, strangulation consists in a more or less complete interception of the course of the fæcal matters, an interception, preventing the reduction of the hernia, and giving rise to the gravest consequences. This definition is imperfect, inasmuch as it excludes the strangulation of omental hernias. The same surgeon also states that a variety of strangulation consists " in the choking up *(engouement)* of the displaced intestine by fæcal matters accumulating in it; so that in old hernias collections of excrements are almost always found." M. Malgaigne's observations are quite opposed to these views, and he has cited, in his memoir upon the subject, the cases of a great number of persons having hernias, in whom the action of the bowels continued perfectly regular, and whose hernias percussion proved to be empty of fæcal matter. So also, in a great number of *post-mortems*, he never met with such accumulation, although the strangulated portion of the intestines was frequently of considerable length. The opinion is, he observes, manifestly erroneous, for such choking up must result from the accumulation of indurated excrements, while the immense majority of hernias, large and small, is constituted by the displacement of the small intestines, in which, as every one knows, excrements, and especially indurated ones, are not found. The indurated condition of some irreducible hernias has given rise to the error.

In the cases in which the large intestine is implicated in a hernia, such accumulation would seem natural enough, and yet M. M. sought, during two years, among all the published cases, as well as in many of those occurring in his own private or hospital practice, with the result of discovering only one example of this. Rejecting, then, this doctrine as ill-founded and dangerous, M. M. states that, in the question of strangulation three occurrences should be borne in mind. 1. There may be simple strangulation, which is very rare, occurring without inflammation, and inducing gangrene in some hours. 2. Simple inflammation, which is very common, and almost always confined to the serous membrane of the hernia. 3. Inflammation of the mass of the contents of the hernia of the omentum, adipose tissue, and all the tunics of the intestine. This scarcely ever occurs but as a consequence of the former conditions, whether from the effect of the strangulation itself when this is not sufficiently severe to induce immediate gangrene, or from the injudicious employment of the taxis in instances of simple herniary peritonitis. It is the *herniary peritonitis* which constitutes what M. M. terms *pseudo-strangulation.*

Herniary Peritonitis may give rise to either the *adhesive* or the *suppurative* form of inflammation. The former is frequently slight and transient, revealing itself by more or less severe colics, which are relieved by rest, cataplasms, and hot drinks. It especially affects those in whom the hernia is badly supported, in damp, changeable weather, and after excess at table or drinking, although this last circumstance is not so important as some think, inasmuch as subjects having the large hernias frequently commit every kind of debauchery with impunity,

The partaking of cabbages or beans often gives rise to an accumulation of gas and the production of great suffering in the subjects of hernia. Among the most common symptoms are dull colicky pains, meteorism, and a physical or mental uneasiness, especially after any but the most moderate meals. For a long period M. Malgaigne attributed this *malaise* to mere change in the position of the vis-cera, but he now considers it a symptom of peritonitis. In some cases the local and general uneasiness is very slight, but a difficulty is found in the reduc-tion of the tumour. If we are called at the commencement of the case, we must at once reduce the hernia; but if we see it later, we must first relieve the irrita-tion in order to facilitate the taxis, which however must not be too long delayed. In a yet farther advanced stage, there are pains in the abdomen and the tumour, constipation and vomiting. In his memoir, M. Malgaigne has cited several facts, in which intense pains and a seeming irreducibility have yielded to a long-con-tinued pressure. "The slightness and fugacity of the herniary colics, which I consider as the first stage of a peritonitis, have been objected to me," M. Mal-gaigne observes, "but it is to be noted that many pleural adhesions are met with in persons who have never suffered other than slight stitches in the side, and adhesions of the omentum to the hernial sac are observed in those who have never suffered any durable uneasiness in the hernia."

The following are the practical conclusions which M. Malgaigne draws from his experience. 1. In all old intestinal hernias, which have never been supported by a bandage, or for which the bandage has been long abandoned, there is no true strangulation—the ring or rings being much larger than is required for the pedicle of the hernia. This is the result of all the examinations I have made, whether upon the living or the dead; for I have never yet met with an exception. 2. In pure epiploceles, whatever may be their size, it is generally an adhesive or suppurative peritonitis which exists; and, although the reality of a strangulation in such cases cannot be absolutely denied, its demonstration remains to be made. I cannot avoid, however, remarking upon the inconsistency of those surgeons who, operating to remove a pretended strangulation of the omentum, and finding it changed in texture, apply a ligature to it, thereby submitting to a strangula-tion ten times more severe than that for which the operation was conducted. 3. Consequently, in these two specified cases, an operation is always irrational, and should in future be abandoned by surgeons.

" If we adopt these conclusions, which then are the indications to be fulfilled ? First of all it is essential to ascertain if the hernia could in part or entirely be re-turned before the accident, if the patient could return it himself, and retain it without uneasiness in the abdomen. For in this latter case we must refrain from the taxis, as we risk by succeeding in its use the production of an unexpected death. When the circumstances are favourable, and we are called in good time, before the skin of the scrotum participates in the inflammation, the taxis is the first of all means. If it does not succeed at first we may cover the tumour with a cataplasm, place the patient in a bath, give a tobacco injection, and then recur to it. This procedure is founded upon the fact that, frequently the inflammation appears to result from a simple displacement of the viscera, when their reduction suffices to dissipate it. But I cannot too strongly recommend the most gentle manners of proceeding, and that the surgeon should always bear in mind that he has to do, not with choked up organs, but with inflamed tissues; and, if he finds resistance, he must know when to abstain. In such case he must confine himself to cataplasms, leeches if necessary, and the diminution of drinks in order to check the vomiting, assuaging thirst by pieces of ice, &c. When, however, the inflammation has declined, as indicated by the diminution of the tumour and the flaccidity of the skin over it, he must again have recourse to the taxis. In *enterocele* the taxis has the double object of preventing the establishment of ad-hesions, and giving the liberated intestine power to resume its functions, which it will do better in the abdomen than elsewhere. For it is a remarkable thing

that the intestinal noose remains distended with gas after the inflammation has disappeared, which opposes some slight obstacle to the efforts at reduction. After reduction the gas becomes dissipated over the rest of the canal, relieving this portion of its distension. If a laxative enema were not usually given the stools would yet soon naturally appear. After the reduction we may even leave the patient without a bandage. The hernia projects externally, but without tension, pains, or resistance to reduction. It has returned to its normal state. In *epiplocele* our only object is to prevent the formation of adhesions which take place much more rapidly than in enterocele; and, as they are especially organized at the fundus of the sac, they not only impede the eventual reduction of the hernia, but, by maintaining the pedicle of the omentum within the ring, render the escape of a portion of intestine much easier, and the application of trusses more difficult. Thus, when the first attempts at reduction have failed, we should treat the local peritonitis by appropriate means, but I always recur to the taxis in a shorter period than in the case of enterocele. If the inflammation is intense and has proceeded on to the suppurative stage, it is remarkable that, in general, false membranes and adhesions cut off the communication between the herniary sac and the peritoneal cavity. The former then resembles an encysted abscess which should be freely laid open, taking care not to destroy these useful adhesions, and then leaving the case to Nature. The same practice is indicated when the abscess is complicated with a fissure of the intestine. If, finally, the inflammation is too extensive to yield to treatment, the case becomes desperate; but at least it is better to let the patient die naturally than to hasten his end by an operation which nothing can justify."—*Gazette des Hôpitaux*, No. 117.

[Perhaps the complication of Hernia by inflammation is too much overlooked in favour of relieving a real or supposed mechanical obstacle. Certain it is that M. Malgaigne in his hospital has successfully treated numerous cases upon the above principles, which, according to ordinary rules, would have been submitted to operation. When we recollect the urgent importance of this being quickly resorted to in the cases for which it is indicated, we see the element of difficulty added by M. Malgaigne's views to a question already sufficiently complicated. It must be borne in mind he limits his recommendation to specified cases, which however are not of unfrequent occurrence."—*Rev.*]

ON THE INFLUENCE WHICH DISEASES OF THE UTERUS EXERT IN PRODUCING A FAULTY POSITION OF THE CHILD.

M. *Tanchou* read a paper in which he endeavoured to show, that although the abundance of the *liquor amnii* or the influence of external circumstances may contribute to the production of the anormal portion of the fœtus in utero, yet that prior or present disease of the walls of the organ is a more probable and the most frequent cause. Would it not therefore be proper, after a difficult delivery in which the child has occupied a faulty position, to investigate whether any latent disease of the womb existed, in order that by appropriate treatment the reproduction of this untoward accident might be prevented in future pregnancies. When, however, the anormal position is found to exist habitually in women who have never been ill, and in whom no disordered state of the uterus can be detected, may we not believe the faulty position is due to some primary vicious conformation of the organ, investing its planes of muscular fibres with unequal power and development? M. *Dancel* observed that difficult labours are met with chiefly in large towns in which diseases of the uterus are of frequent occurrence. In provincial towns they are rarely met with, and never among primiparæ in the country. The only difficult labours met with in the country arise in women who

have already had four or five children, and have subsequently suffered from diseases of the uterus. M. *Duhamel* considered the question should be reduced to these terms. Is a faulty position of the fœtus more frequently observed in women, who have had several children than in primiparæ ? If so, a strong probability attaches to M. Tanchou's opinion. He believed in his own experience he had met more examples among women who had had children than in primiparæ : but he also has met with such in the latter. That there should be a larger proportion among the former is in no wise surprising, seeing that there are so many more accouchements of women who have had children than of primiparæ. M. *Guersant* observed that two points required consideration ; first miscarriages, and secondly faulty positions. "As to the first, It results from my observation that pathological conditions of the uterus exert a great influence in their production. In young married women they are very frequent, which is attributable to the congested state of the womb. So true is this, that when the female adopts a severe regimen, bodily rest, and other precautions, she avoids miscarriage. As to false positions of the infant, I can say nothing of the effect of the diseases of the womb." M. *Picard* cited several cases in which diseases of the uterus induced miscarriage ; but he considered the effect of these in the production of faulty position rather as a theoretical statement than a demonstrated fact.—*Discussion at the Société de Médecine Pratique, Gazette des Hôpitaux*, No. 119.

On Granulations of the Cervix Uteri. By M. Velpeau.

Granulations of the Cervix Uteri are of such frequent occurrence, that we may state it is generally the affection which really exists when ulcerations are said to be present ; for, by a medical attendant not accustomed to observe them, they may easily be mistaken. One reason why they are so imperfectly known is that examinations are not made when the woman, as in this affection, does not complain of severe pain. It is a current but erroneous belief that *cancer* is a disease attended with dreadful pain, and if this symptom is so slight as not to excite a fear of it, examination is generally neglected. In fact, cancer may proceed very far with little pain, and most of our patients have explained their not applying for advice at an early period by this circumstance. Some women, however, suffer dreadfully from cancer, and it is from such cases the pictures in books have been drawn ; and most suffer greatly towards the termination of the disease, when probably the broad ligaments and nervous plexus become involved.

As to the numerous *varieties of ulceration*, such as the scrofulous, scorbutic, &c., described by various writers upon the diseases of this part, we have never been able to distinguish them.

The *granular condition of the cervix* is always indicated by a more or less abundant whitish discharge ; and, although a lactescent, yellowish discharge, sometimes tinged with blood, may certainly be a symptom of some other diseases, it generally indicates granulations, especially when accompanied with pains in the bowels, groins, and loins, and by loss of flesh. When an examination is made by a *sufficiently-exercised finger*, the cervix is found slightly enlarged and imparts a sensation of granulation to the finger, just as if a raspberry were spread out into a firm membrane. The granules are easily recognised by one accustomed to search for them, and more so by the finger than by the speculum, which, unless in very inexperienced hands, may lead to error. When this instrument is introduced it raises the mucous membrane of the vagina into two folds, which may easily be mistaken for the cervix, or it may only discover one side of the cervix, and that the healthy one. Of the two means, then, the finger is preferable to the speculum, but each may be advantageously used to control the results obtained by the other. Sometimes the granulations are disseminated, at others, assembled

together in patches. Generally they occupy the os, but at other times they are found within the cavity of the cervix. It is in this last case that the speculum is chiefly useful, as, on exerting a little pressure when the neck is engaged in its extremity, the orifice is somewhat expanded; and, if we then see muco-purulent fluids flow out, granulations certainly exist. Granulations only affect the mucous membrane. The epithelium is destroyed, and the papillary layer denuded, but the proper tissue of the organ remains unaffected. It is seldom that we find any marked tumefaction present. Frequent as is the disease, it presents no other varieties. It is true that ulcerations are sometimes produced by excoriations of the granulation, but they are hardly worth notice, and change nothing as to the nature of the disease. A very important question presents itself—Are granulations dangerous? Some practitioners reply to it affirmatively, believing them as the departing point of cancer: but this has never been demonstrated. Such a number of women have had granulations for a long period without cancer ever resulting, that it is doubtful whether it ever so arises. Granulations, indeed, admit of cure in almost every case, certainly in 19 out of 20—*cauterization* being the means par excellence. The nitrate of mercury is the most efficacious, as well as the most convenient caustic, and never does any mischief. A small pencil moistened with it should be applied to the granulations once a week for five or six weeks, but not for a longer period; inasmuch as, if we prolong the use of the application, the little ulcers it induces are prevented healing. A few baths and some tonic medicine complete the cure.

The history of granulations is much connected with that of *deviations* of the uterus, the two affections so commonly occurring simultaneously. Prior to our investigations, some twenty years since, these deviations were not acknowledged, except as connected with pregnancy; but they are now known to constitute the commonest lesion of the female genital organs, although they are yet frequently mistaken and treated for other affections. Not only may there be anteversion, retroversion, or lateral version of the cervix uteri, but likewise an inflexion of the womb upon himself; and inflexion is of far more common occurrence than inversion. In inflexion we find the cervix in nearly its natural position, while the body of the organ is bent forwards, backwards, or laterally. The cervix is found normal, or nearly so, and as a lump, sometimes tender, can be felt in the pelvis, the case is set down as one of engorgement, and the patient submitted to injurious confinement and medication. Of 50 cases of pretended engorgments at least 45 are examples of deviation only. When the true nature of the case is ascertained, it is evident that we must rely chiefly on mechanical support; and, although this cannot always be effectually applied, we are at all events able to prevent the patient suffering from needless fears, and encourage her to take exercise and good diet, which are two important points. We do not deny that engorgements may exist, but we maintain that they are very rare; and, considering diseases of the uterus in the order of the frequency of their occurrence, we place granulations of the cervix first, then deviations—affections which are met with every day: after which come anormal productions, such as fibrous tumours, cancer, engorgements, &c."—*Gazette des Hôpitaux*, No. 117.

CLINICAL RESEARCHES UPON THE ORGANIC CAUSES AND THE MECHANISM OF THE PRODUCTION OF THE AFFECTIONS TERMED HYSTERICAL. By CH. SCHUTZENBERGER, Professeur de Clinique Interne à la Faculté de Strasbourg.

M. Schutzenberger has recently published an interesting series of papers upon the etiology and pathology of Hysteria, illustrated by several cases. We have only space to quote his conclusions, which seem to us to establish more precision

in the distinction of the various causes of this distressing malady than heretofore prevailed.

1. The term "Hysteria" has historically two significations: the one symptomatical, the other etiological. 2. Under the symptomatic point of view, it is any thing but a rigorously determined pathological condition; for, if all our authors proclaim the extreme variety of its phenomena, some more especially confine these particularly to more or less general convulsive attacks, while others extend them to nearly all the nervous disturbances observed in women: so that, in practice, the symptomatic and purely nominal diagnosis is often a deception, no one knowing exactly what is to be understood by hysteria. 3. Examined under the etiological aspect, hysteria is in no-wise more exactly specified. If there is want of agreement as to the symptoms, there is still more in respect to their cause. Admitted only by induction, and not being generally capable of a practical diagnosis, the etiological expression of the disease possesses scarcely any scientific precision, save in appearance. 4. Under these circumstances we should absolve ourselves from a *specification more nominal than scientific*, which impedes free investigation, and study the nervous functional disturbances less as nosologists who seek out the varieties of a given and known disease, than with the independent spirit of the clinical physiologist.

5. From a first series of facts investigated in this manner it results:—A. That certain local nervous excitements, generally continuous, may become the organic cause of intermitting functional disturbances—exhibiting themselves under the form of more or less general convulsive attacks, with or without the loss of sensibility—without the central organs of the nervous system in general being the subjects of any permanent pathological condition. B. That, among women, *excitement of the ovaries* is the most frequent cause of this kind of disturbance, producing it in a manner analogous to other reflex action. C. We recognise clinically the reality of this cause, since deep-seated pressure will induce local pain and reflex convulsive action. D. Other local irritation may produce analogous phenomena, and an attentive examination may discover such centres of irritation. E. These local irritations, capable of propagating excitement, when simple, and especially that of the ovary, are affections of slight gravity, unless they have been long neglected, or are conjoined with incurable organic conditions. F. In practice, it is of the first consequence to determine the cause of the local nervous excitement. G. As regards the ovary, it may depend on congestion, on inflammation, on degeneration, or on a purely neuralgic condition. H. Our indications of treatment are—1, to remove the determining cause of the local excitement when it is appreciable; and 2, to directly diminish the excited condition of the nerves of the part which form the focus whence the local irritation is propagated to the system. I. The means of effecting the first of these are as various as are the causes themselves. J. Certain substances, and especially assafœtida, castor, and galbanum, seem to exert a sedative effect upon the ovarian excitability; but their employment in no-wise excludes the application of other agents derived from general therapeutics. K. The intermittent nervous excitement or convulsion demands but secondary or palliative measures, ceasing, as it does, when the local irritation is relieved: unless, indeed, under the influence of the frequent repetition of the propagated pathological condition, a morbid degree of excitability of the spinal marrow does not become *secondarily* established, and henceforth capable of being induced by simple physiological stimuli. Although this is only consecutive to simple local irritation, propagated by reflex action, it now becomes an entirely new pathological condition.

6. A second series of clinical researches authorises the reference of a great number of functional disturbances occurring in the sensitive sphere, to a special *pathological condition*, whose material element is unknown, but which is characterised dynamically by an *exaggerated excitability* of the sensitive nerves. The term *hyperæsthesia* may be used to characterise this condition. A. We may

clinically recognise the existence of this organic condition, when *physiological stimuli* or *slight causes of excitement* produce functional manifestations in the sensitive nerves which appear *spontaneous* or *exaggerated*. B. This organic condition of the nervous system is sometimes idiopathic, a part of an original constitution, or it may become developed under the influence of a neglected hygiene. In such cases, too, hygiene offers our most valuable therapeutical resources; for medicines employed with the direct view of diminishing the general excitement merely procure a temporary relief, and the treatment of local excitement can only be regarded as symptomatic and palliative. c. At other times, the morbid excitability of the sensitive nerves is the consequence and effect of *simple* or *chlorotic anæmia*. It is indeed an exaggeration which yet contains much truth, to say that chlorosis rules over the entire nervous pathology of woman—that hysteria is but a species of chlorosis, or as Sydenham expressed it, chlorosis is an hysteric affection. Here, too, we must attack the cause, and *iron* is our sovereign remedy, all attempts at directly reducing the excitement being mere palliatives.

7. A third series of cases reveals the existence of a more complex pathological condition, in which the hyperæsthesia is associated with a particular morbid condition of the spinal marrow, unknown as regards its material element, but dynamically characterised by a *pathological excitability*, in virtue of which the reflex property of the organ becomes exaggerated: so that we may with propriety term this *reflex excitability*. A. This complex condition is recognised at the bedside by— 1, characters already attributed to hyperæsthesia ; 2, the existence of a greater or less number of *permanent centres of sensibility, the artificial and mechanical excitement* of which induces with facility reflex movements in the form of convulsive attacks. B. As in simple hyperæsthesia, simple or chlorotic anæmia often plays the part of cause of reflex spinal excitability; but this may also be developed suddenly, or it may be consecutive to the frequent recurrence of simple intermittent excitement, originally due to a local cause. c. In cases of this kind the multiple points of departure of the attacks only play a secondary part, and only furnish palliative indications, the importance of which is an inverse ratio to the multiplicity of the centres of peripheric excitement. D. The fundamental indication consists in fundamentally modifying the organic conditions which incessantly revive the functional disturbance ; the hyperæsthesia on the one hand, and the spinal reflex excitability on the other. E. The first of these we have noticed already ; but we know of no means of directly acting upon the latter. Blood-letting is usually ineffectual, may prove in many cases injurious, and is really only indicated in those exceptional examples in which the spinal excitability is connected with local congestion or general plethora. Narcotics exert no durable influence ; and antispasmodics, such as valerian, assafœtida, castor, &c. are not more useful. The metallic oxides and sulphate of quinine have not been sufficiently experimented upon in these special cases. The means which we have hitherto found most efficacious is the application of cold, either by means of lotions or baths. It is a plan, however, which must be employed cautiously. It is certain also that the exertion of the will may, to a certain point, triumph over this spinal excitability ; so that voluntary motions *methodically* practised form one of the best means of preventing the reproduction of the reflex ones. As a principle, we may state that the reflexibility diminishes in proportion as the influence of the will over the spinal marrow is strengthened, and *vice versâ*.

It results from what has now been stated that the well-proved presence of *general excitability* renders the prognosis serious. Although a cure be not impossible, it can only result from a well-digested plan of treatment pursued for a long period.— *Gazette Medicale*, No. 43.

On the Employment of the Iodide of Potassium in the Treatment of Syphilis.

This recently formed the subject for which the Paris Society of Medicine offered its gold medal. M. *Gibert* was appointed to report upon the merits of the competitors, and he awarded the medal to *M. Payan of Aix*, recommending, at the same time, a silver medal for an essay by M. Bassereau. M. Gibert's Report and M. Payan's Essay are both published in the *Revue Medicale;* and some notice of them will prove a useful *pendant* to Mr. Ormerod's observations upon the same subject, at p. 74 of our present number.

M. *Bassereau's* paper is chiefly valuable as containing an ample detail of M. *Ricord's* experience in the use of Iodine, he having been one of those who have employed it most extensively. According to M. Ricord there is but one *primary* symptom, chancre; and the shorter the duration of this is rendered, either by an early resort to caustic or a later employment of mercury, the less are secondary symptoms to be feared. Secondary syphilis may be divided into two epochs. During the first, *secondary* syphilis properly so called, those of a superficial character chiefly occur, such as exanthematous eruptions, patches on the mucous membranes, and superficial ulcerations at the mucous orifices. The deeper-seated symptoms, which occur later, such as deep-seated tubercle and serpiginous ulceration of the skin, deep ulcer of the fauces, periostitis, &c. are termed *tertiary*. Between these two classes there is found a mixed or *transition* series, comprehending certain of the pustular and tubercular syphilides, venereal sarcocele, &c. For the primary symptoms, mercurials; for the secondary and transition periods, mercury, either alone or combined with iodine; and, in the tertiary period, the Iodide alone; are the means recommended by M. Ricord.

M. *Gibert* takes the opportunity of expressing the opinion which a long employment of this remedy has enabled him to form. 1. The Iodine incontestably merits the reputation it has gained as an anti-syphilitic. 2. It may be given in a variety of fluids, but is best administered in distilled water with a little syrup; the quantity varying from 15 to 30 grains per diem, taken in two doses. 3. It succeeds alone in cases of secondary and tertiary syphilis. 4. Its harmlessness renders it especially valuable in syphilitic cachexia, also for women, children, the delicate and feeble. 5. As being more certain and efficacious, and as innocent, Mr. G. prefers the *sirop de deuto-iodure-ioduré*, i. e. iodide of potassium in combination with bi-iodide of mercury. 6. Iodide of potassium is the remedy *par excellence* in those cases in which mercurials fail, while reciprocally these will cure cases which resist iodine.

M. Payan's Essay is the most elaborate exposition of the advantages of Iodine we have yet met with ; illustrated, as it is abundantly, not only by cases which have occurred to the author, but by reference to a great number of others which have already been published. He passes the various preparations of iodine which have been recommended under view, and considers that the *iodide of potassium* is in every respect the one to which preference should be given. Its easy *solubility* allows of its being administered at any degree of strength, and in almost any vehicle or combination. It is not *irritating* like iodine and so many of its compounds are, and never gives rise to the accidents which they do, even when given at the extreme ages of life. It never induces *marasmus* or *wasting* of organs or tissues, like iodine frequently does : acting instead as a corroborative or tonic, although at the same time it exerts a remarkable resolvent effect upon pathological productions. If iodine has of late years been successfully employed in a variety of morbid conditions, against which it was formerly pronounced inoperative, this is entirely due to this form of it, being substituted for those formerly in use. M. Payan does not approve of the association of iodine with the iodide.

Mode of Administration.—Dr. *Wallace* of Dublin (the first practitioner who employed this drug in syphilis to any great extent, and whose clinical lecture in the *Lancet, March* 1836, is frequently quoted from by M. Payan) dissolved 3 ij. of the salt in 8 oz. of water and gave the patient a tablespoonful four times a day. M. *Ricord,* a great authority upon this subject, considers that most cases require about 21 grains per diem as a minimum, divided into three doses. Four or five days after, this dose is gradually increased until double the quantity is taken, which for most cases suffices, although some few may require the maximum, a drachm and a half per diem. M. Ricord for patients who can afford it, prescribes only syrup. sarsaparilla 500 parts, iod. pot. 16 pts. M. *Lisfranc* commences with 15 grains per diem, and gradually increases the dose until sometimes as much as 120 grs. are taken—the medium quantity being from 45 to 60. M. *Payan* gives the medicine in a *tisane,* or if the patient can afford it, in sarsaparilla. If there are any hypersthenic symptoms, he commences with 8 grs. per diem, and otherwise with 12 or 15, increasing the dose by four grains every few days, until from 30 to 40 grains are reached, beyond which he seldom proceeds. The entire quantity which may be required for the cure of the disease varies much in different persons, some requiring very strong doses, and others being cured just as quickly by very moderate ones. The medicine will be usually required for from one to two months, for the cure of primary symptoms: from two to three for secondary syphilis, and from two to four for tertiary symptoms. If the medicine is given in *pills,* it gives rise to very severe griping, which it never does in solution. When the stomach is very irritable, it may be given in an *enema.*

The author first demonstrates, from his own and others' observations, the immense utility of this drug in *tertiary syphilis.* This class of cases is precisely the one in which mercury has been often found of so little avail, or even to lead to exacerbation of the evil; so that many persons have been accustomed even to attribute the existence of the symptoms to its use. It is evident that a long continuance of the syphilitic diseases impoverishes the system, producing pallor, wasting, &c.; and yet we give one of the most hyposthenic of remedies, possessing the power of attenuating the blood and diminishing its plasticity. How often have practitioners regretted the absence of a remedy combining the power of a specific and a reparative or tonic! The iodide accomplishes these purposes in the most effectual manner; and very remarkable it is, that while mercury is less efficacious in proportion to the inveteracy of the disease, the rapidity and completeness of the operation of iodine is proportionate to the prior long-continuance of the disease. "For those who might charge us with exaggeration in our appreciation of this invaluable medicine, we may refer to its success in the obstinate cases we have detailed. We have seen it almost instantly arrest the course of the disease; relieve and cure those dreadful pains in the bones which had caused so much misery; disperse exostoses, periostoses, and those gummy tumours which had offered such resistance; cicatrize those terrible, gnawing ulcers; triumph over muscular contractions, and cases of caries and necrosis heretofore attended with such terrible consequences; and, in fact, cause the disappearance of those diatheses which were formerly deemed utterly incurable, the grave holding out the only prospect of escape from them. If, again, we consider that the progress towards cure has always proceeded with unhoped-for rapidity; that the medicine is in itself harmless and exempt from the inconveniences which make so many patients dread mercury, we shall feel less surprise at so favourable an opinion being given. 'I am so persuaded of the efficacy of iodine in tertiary syphilis,' observes M. Ricord, 'that I hesitate not to propose it as a specific in such cases, while it may act as a prophylactic against such, after we have dissipated the secondary symptoms by the aid of mercury.' "

Although most practitioners allow the vast efficacy of this medicine in *tertiary*

syphilis, greater discrepancy of opinion prevails as to its utility in *secondary* syphilis. M. Payan however quotes many cases in its favour, and thus sums up. 1. That, even as regards secondary syphilis, the iod. pot. should be reputed an anti-syphilitic. 2. That it is especially useful in the syphilides. 3. That the longer secondary symptoms have existed, i. e. the nearer they approach the category of the tertiary ones, the more obedient are they to the action of this remedy. 4. That this medicine should be especially resorted to when the symptoms have resisted mercury judiciously administered. 5. That we should even commence with it when from the age of the symptoms we judge them removeable by mercury but with great difficulty, or when the debilitated state of the constitution indicates the necessity of reparation. Many cases which have partaken of the character of secondary and tertiary symptoms have benefited by conjoining with the mercurials decoction of sarsaparilla containing the iodide. It would be unjust to deny the anti-syphilitic powers of the iodide, because in some cases of secondary or other syphilis it proves inefficacious; for mercury itself, in stages of the disease wherein its beneficial agency is unquestionable, sometimes fails also.

For exemplification of the utility of the iodide in *primary syphilis*, M. Payan is obliged to rely almost exclusively on the evidence his own cases afford, few practitioners having employed it in this stage. He, however, has since 1842 made experiments upon this point, furnishing, he states, highly favourable results. Fifteen of these cases he relates, almost all consisting of indurated chancres, taken, however, unselected, from among the patients who offered themselves to his notice. He concludes—1. That even in primary syphilis, iodine should not be considered as destitute of anti-syphilitic properties. 2. That it has been found useful sometimes in continuing a treatment commenced with mercury, at others as an exclusive means of treatment. 3. That therefore, without pretending to declare it should in the generality of primary symptoms be preferred to mercurial preparations, the efficacy of which every day's experience testifies, yet there are cases in which it may be highly serviceable. 4. That in cases in which the primary symptoms resist the action of mercury, the substitution of, or the addition of the iodide to the mercury operates as a cure more rapidly than any other succedaneum. 5. There are cases in which we should prefer the use of the iodide to mercury, as when the symptoms have an indolent character, or are connected with a marked hyposthenic condition.—*Revue Medicale*, Tom. II. for 1846 & prec.

ON THE EMPLOYMENT OF DILUENTS IN URETHRITIS.

M. *Lagneau* read a Report to the Academy of Medicine upon a paper supplied by M. *Loreau*, in which from certain experiments, he deduces the propriety of employing diluents; and abstaining from the use of the *nitrate of potash* in the acute stage of gonorrhœal inflammation of the urethra. The Reporter observes that, although the experiments (made on men) were few in number, they were valuable in consequence of the great care with which they were conducted, and that the conclusions M. Loreau had arrived at were in accordance with the views he himself had long entertained. The copious employment of diluents, it is well known, exerts a remarkable effect in diminishing the *ardor urinæ* of gonorrhœa; but the nitrate of potash which is usually prescribed in these cases, according to those experiments, renders the urine eminently acid, and hence more fitting to increase than appease the urethral irritation; while it does not produce a notable increase in the quantity of urine, beyond that resulting from the use of diluents alone. The saline constituents of the urine, which are its irritating portions, become, during the taking the diluents, reduced by one-third of their usual proportion in a given period, while even this quantity is far more abundantly diluted. The drinks seem then to exert a sedative effect upon the kidneys, which then have

become rather simple apparatus of filtration than of secretion. Nitre is therefore at least useless, and may become even injurious in this affection, by the acid property it imparts to the urine irritating the inflamed canal. Nevertheless, the Reporter suggests that, when the urethritis puts on an indolent character, or when the secretion of urine is insufficient in chronic cases, the slight stimulus to the canal imparted by the nitre may be useful—viz. in the period of the disease just prior to having recourse to medicinal substances possessing a specific power in arresting the discharge.—*Bulletin de l'Academie*, T. XI. p. 1449.

FRACTURE OF THE CERVIX FEMORIS.

In allusion to a case recently occurring in the person of a woman æt. 53, M. *Velpeau* made the following remarks. "Pain and swelling are signs of little consequence, as they may equally exist in fracture or sprain. The impossibility of *raising the heel from the bed* is a sign. It may certainly be present also in a painful affection of the joint; but in the fracture of the cervix there is an absolute impossibility of raising the limb, while in the other affection this may be done if the pain is disregarded. Thus, in a luxation, the patient seems at first unable to raise the limb: but he can do so by perseverance. *Eversion of the foot* is not a pathognomic sign, as it may exist in other lesions; *e. g.* luxation on to the pubes; but in the case of luxation not only is the limb everted, but neither the patient nor the surgeon can change its direction, while in fracture the surgeon easily turns the foot inwards. There are other affections in which the foot is rotated outwards, as in paralysis and certain painful affections of the hip. The *admeasurement* of the limb is of great importance, but it is of much more difficult accomplishment than is usually believed. The inclination of the axis of the pelvis, or of the limbs themselves, often gives rise to apparent differences, against which we must be on our guard. We must never depend upon mere inspection; but must carefully measure the limb after having placed the patient on his back, and taken care that he lean to neither one side nor the other. In these persons, and in those in whom the bony points are prominent, it is easy enough to measure from the iliac spine to the upper edge of the patella; but there are persons in whom the iliac spine is so rounded off that we cannot be certain we are applying the tape upon exactly corresponding points upon the two sides, and an apparent difference, amounting to some lines, may result. So, also, the patella is not only not a fixed point, but its superior angle may be somewhat higher on one side than the other. In this way, several slight errors conjoined may give rise to the belief in a shortening which has no real existence. By carefully guarding against any obliquity of the pelvis, ascertaining exactly the position of the superior anterior spinous process, and carrying the tape down to the malleolus instead of the patella, we shall avoid all serious error."—*Gazette des Hôpitaux*, No. 68.

TREATMENT OF SATURNINE AFFECTIONS.

Two papers have been recently read at the Academy of Medicine (during some of the few intervals of the interminable discussion on the Plague) upon the therapeutical indications in poisoning by lead. The first of these was from the pen of M. *Sandras*, who, together with M. Bouchardat, has been for some time engaged in experiments upon the subject. From these it results that the *persulphate of iron* forms a good antidote to poisoning by lead, copper, corrosive sublimate and arsenic. The researches of modern chemists have shown that those poisons become deposited in the liver, and MM. Bouchardat, Sandras and

Blondlot had proved the liver to be an organ of elimination. The indication resulting from this is, besides evacuating the digestive canal of the poison, to retain in it an excess of the antidote, with the intention of keeping in an insoluble condition all portions of the lead poison excreted by the liver, until such excretion is completed. To secure the effectual cleansing of the outer and inner surfaces of the body, M. Sandras causes the patient to be placed in a soapy bath immediately after his admission, and then administers croton oil in an enema. This portion of the treatment has been especially prescribed for patients affected with violent colics and constipation. In some cases it has proved of no avail, and has been neglected without inconvenience. About three ounces of the persulphate are dissolved in a pint of water and a tablespoonful of the mixture is given night and morning. Much more considerable doses may be given without any danger, and continued for weeks or months if necessary. To remedy the consecutive accidents resulting from the poisoning, *opium* is given; in small doses for the relief of the colic and cramps, and to procure sleep: and in large doses in tremours with or without convulsions and violent pains in the limbs. Strychnia is given in paralysis with diminution or increase of the sensibility of the skin; and belladonna if neuralgia is present. The regimen should be as substantial as can be borne. During 1844-46, 122 patients, workers in lead, potters, printers, &c., presenting the various marks of lead-poisoning, such as constipation, colic, change of colour of the skin, &c. &c. have been treated in this manner by M. Sandras. Of these, two only have died, one from typhoid fever. All the others were cured, viz. 25 in less than 8 days; 26 in less than 15 days; 17 in less than 3 weeks; 26 in less than 4 weeks; 13 in less than 5 weeks; and 15 in more then 2 and 3 months. There have been two instances of relapse without the patient having again handled lead: and all the others have only been discharged after their cure had been well ascertained. The patients of the first four of these series presented acute symptoms of lead poisoning; those of the two last likewise suffered from paralysis in different degrees.

M. *Legroux* is the author of the second memoir, and the following are his conclusions. 1. The saturnine affection is a general disease and not a local affection of the digestive canal 2. The symptomatology of the affection, in spite of the frequent predominance of colic and constipation, which yet may be absent, indicates a disturbed condition of innervation and nutrition. Chemical analysis demonstrates the existence of lead in the organs of patients who succumb two months and a half after the existence of the disease even, as occurred in a cachectic patient, who died at the end of that period, after undergoing all kinds of treatment. On the other hand, the absorbed lead is eliminated by the skin, as is proved by the formation of sulphuret of lead on the surface of the body after the employment of sulphureous baths, and that several times successively, in spite of soapy baths having in the intervals cleared off the sulphuret already deposited. It results from these facts, that the saturnine affection is a poisoning and not a neuralgia, and that, in the nosological scale, it should be ranged amid the nervous diseases, but side-by-side with the poisonings. 3. The cure of this affection is operated by depuration, and may take place spontaneously. 4. The number and rapidity of the cures obtained in twelve patients treated upon the expectant plan should render us very reserved in the conclusion we draw concerning the value of different modes of treatment. 5. The treatment of these affections comprehends the following indications. A. The destruction of the external cause of the poisoning by the cleansing of the objects and clothes in contact with the body; and the neutralization of the lead deposited on the surface of the skin by means of sulphur baths, which must be insisted upon even a long time after real or apparent cure. B The destruction of the internal cause of poisoning, by the expulsion or neutralization of the lead deposited on the surface of the mucous membrane, by means of alum, sulphureous waters, sulphuric

acid, or the hydrate of the per-sulphate of iron. But these means are prophy-lactic, not curative. c. The curative indication directs itself to the elimination of the absorbed lead, and acts by inducing or favouring secretion. The cutaneous system may be thus usefully employed, but experience proves that the most prompt results are produced by the use of evacuants, and especially as employed at *La Charité.* D. A fourth indication should consist in counteracting the poi-sonous agency of lead by a medication possessing an opposite mode of action. According to the Italian doctrine, *opium* would be precisely this agent; but its employment as the basis of treatment in some patients has far from confirmed the good opinion entertained of it. E. The last indication relates to certain mor-bid conditions which the saturnine affection leaves behind, of which the most constant is a condition of anæmia requiring ferruginous medicines and a supporting regimen. Any plan of medication which does not comprehend the whole of these indications is imperfect. The two first are purely prophylactic, and expectation with them chiefly accomplishes the cure. The third without the others, and espe-cially without the first, exposes to relapse. The fourth, used alone, has the same inconvenience, and the cures so obtained are only the effects of a spontaneous depuration. Finally, without the fifth the cure would not infrequently leave behind it a more or less serious morbid condition, and a debility which would singularly expose the workman to relapse upon the resumption of his labours.—*Gazette Medicale*, Nos. 38 and 44.

OBSERVATIONS ON SOME CASES OF SUDDEN OR VERY SPEEDY DEATHS, PROBABLY DEPENDENT ON DISEASES OF THE HEART AND LARGE BLOOD-VESSELS. By H. C. LOMBARD, M.D. Geneva.

It is not a very long time since all cases of sudden death were regarded as *apoplexies*, and consequently referred to affection of the brain. At the present time, in consequence of more accurate researches, it is generally agreed, that the greater portion of them depend upon *diseases of the heart or large blood-vessels.* In fact, if we except some cases of hæmorrhage into the Pons Varolii or Medulla Oblongata, it is very rare for sudden death to occur from cerebral apoplexy, the patient almost always surviving the rupture of the cerebral substance, and the compression of the brain by the effused fluid, several hours. We must then receive with distrust several of the cases related under the title of "thundering apoplexy," when the death has been very sudden, and the lesion not verified by an autopsy.

It is quite otherwise with regard to death produced by a morbid condition of the heart and the large vessels. An old practitioner, Dr. Butini of Geneva, once said to me, in reference to a sudden death which took place in a case of heart disease—"You must not be surprised at this sudden termination. More than a third part of such patients die in this manner, some in turning round in bed, and others, and this is the most frequent case, while getting up to go to stool; so that you must consider sudden death as an ordinary consequence of disease of the heart and hydrothorax." I have had frequent occasion to verify the ex-actitude of these words, which were addressed to me at the commencement of my medical career: and now, after seventeen years' practice, I wish to add the result of my experience to that of the distinguished physician I have named. In fact, both in my private and hospital practice, I have had frequent occasion to meet with sudden terminations of heart disease. I have seen patients die suddenly at every stage of these affections, sometimes when the organic changes were so little advanced as not to prevent them following their ordinary occupations; at others, when the extent of the changes, and the complication of dropsy had long

confined them to bed, or at all events to the house; and, if it were desired to establish the proportion between the frequency of sudden deaths among those who seemed only to be slightly attacked and those who were so seriously, it would be in favour of the former I should declare—in other words—*the less advanced the organic disease the more frequent are the sudden deaths.*

Theory easily explains the sudden death of persons suffering from heart-disease. In fact, when the central organ of the circulation is in its normal condition, the temporary cessation of its functions is rarely of serious consequence; while, when its cavities or orifices are in a diseased condition, such suspension, for however short a period, may be attended with the worst consequences. A comparison will cause this to be better understood. Two waggons heavily-laden seem to roll along with like facility as long as their movement meets with no obstacle. But suppose the horses stop a while, you perceive a great difference. The axle of one of the waggons presents an irregular surface from lack of oil. That of the other turns easily without noise or friction. The efforts of the horses are now tasked to put the wheels in motion, and while the waggon having the easy axle is drawn with the greatest facility, the other obstinately resists the most vigorous efforts of the horses. The two surfaces, which should slide easily over each other, are motionless, and the horses uselessly exhaust themselves. However trivial this comparison may seem, it may give some idea of what takes place in a diseased heart, which has yet up to a certain time performed its functions without much difficulty. A syncope then however happens to occur, and all the efforts of the cardiac nerves upon the muscular substance, either enfeebled or impeded by obstacles at the orifices, are powerless, and the syncope, which in a healthy heart would have promptly disappeared, becomes the cause of death in a diseased one.

On examining the facts we find these cases may be divided into two quite distinct classes; that in which there is simple syncope and instant death, and that in which there is a considerable impediment in the circulation, and not leading to instant death, but producing such a disorder in the vital functions as leads to their cessation in the course of a few minutes. To fatal syncope are to be referred those cases of sudden death occurring when persons affected with disease of the heart are in the act of turning round in bed, or rising to go to stool. Besides *death by syncope,* however, diseases of the heart and large blood-vessels also frequently induce another description of death which I shall term *death from suffocating spasm,* in order to indicate its predominant charactertstic. This, as that from syncope, may occur in persons apparently in the midst of excellent health, but who are really subjects of organic lesions.

Three cases are detailed in exemplification of the characters of this species of death. It is not so sudden as that from syncope, the patient dying in ten or twelve minutes. The attack occurs in the midst of apparent health. The respiration excessively laborious and noisy, the patient the while tossing his arms in convulsive struggle, and expressing by his countenance or some word, for consciousness continues, the extreme of anguish and terror. A white foam flows from the mouth for some hours after death. " What is the mechanism of death in these cases ? Is it a paralysis of the cardiac or inspiratory nerves ? Is it a spasm of the cardiac or thoracic muscles? Paralysis, it seems to us, if complete should induce instant death by a fatal syncope; while, if it came on gradually, it would cause a lingering asphyxia which would only induce death at the end of some hours, or at all events in a much longer period than a few minutes; and the pallor of the countenance of these patients contradicts the supposition of the existence of any such asphyxia. I am disposed to place more weight on the explanation by the existence of a *spasmodic condition of the muscles of the heart and of inspiration,* inasmuch as the symptoms are such as those resulting from the condition known as spasm : and the sudden nature of the death indicates the muscles implicated. These cases bear some resemblance to *Angina Pectoris,* but yet need not be con-

founded with it. Indeed, although death is usually sudden in angina, yet, out of the great number of cases I have perused, and especially those collected by Jurine and Forbes, I have not been able to find one in which it occurred during the first and only attack; while in no one of the three cases I have related had the patient previously suffered from angina. Angina usually occurs either while the patient is walking or asleep; but in two of these cases the patients were quietly seated in their rooms, and no one of them was asleep. Again, in angina there is not that abundant issue of foam from the mouth and nostrils seen in these cases. Lastly, two of the three patients were women; and yet of the 88 cases of angina analysed by Forbes in the *Cyclopædia of Practical Medicine,* 80 occurred in men and only 8 in women.

" What should be done if called to a case of suffocating spasm soon enough? In the absence of all exact notion of the cause of the affection, we must content ourselves with treating symptoms. I should cause the patient to be seated with his head supported, all ligatures formed by articles of dress being removed. I should apply sinapisms to the thighs, or better still, a cloth dipped in boiling water to the chest. I should administer some alcoholic or anti-spasmodic fluid, and if the patient could not swallow, a napkin might be dipped in æther, Eau de Cologne, or some such fluid, and held near his face. As long as the pulse continued low or the respiration embarrassed I should sprinkle the face with cold water. As a general rule I should, on account of the pallor of the countenance, abstain from bleeding."—*Gazette Medicale,* No. 47.

PUERPERAL CONVULSIONS—MALPRAXIS.

A woman 25 years of age, of strong constitution and sanguine temperament, was brought while in labour to the Hôtel Dieu, Paris, at *nine* o'clock in the evening. She was in a state of complete insensibility, agitated by convulsive movements, and gave vent to inordinate cries. At *eleven* o'clock the *interne* on duty was called, and found the head presenting, the uterus however having ceased to contract. He determined on turning; but instead of a leg, brought down an arm. After *three hours* ineffectual efforts to rectify this error he left the women to herself, the convulsions continuing as bad as ever, although bleeding had been twice practised. The child was dead. *Seven o'clock next morning* the woman being in a state of profound coma, the *chief-de-clinique* next tried turning, without success. A surgeon of the hospital was summoned, but declined attending, the case falling within the province of the accoucheur of the hospital. Before the latter could be summoned another *three hours* had elapsed. Turning was then effected; but before delivery was completed the woman had ceased to exist!

A case of puerperal convulsions also recently presented itself in M. Dubois' wards, in which the woman, after suffering an immense number of paroxysms, was delivered by means of the forceps of a living child. Within about thirty hours after delivery she had two other paroxysms; but then seemed in a fair way of doing well, when, after fifteen days of quietude, the convulsions again returned and carried her off, at the end of about the thirtieth paroxysm, the next day.—*Gazette des Hôpitaux,* No. 134.

[With respect to the first of these cases, we have only to observe that the delays and erroneous treatment of the patient reflect the greatest discredit upon the officers of the hospital in which it occurred; and that it is well for them they have no Coroner for Middlesex to visit their neglect with the castigation it deserves. The second case is interesting on account of the remote period at which death took place.—(*Rev.*)

ON THE ELEVATION OF PARTS IN THE TREATMENT OF SOME SURGICAL
DISEASES. BY M. MARC DUPUY.

The object of this paper is to state the great success which has attended the
practice long followed by M. Gerdy in the treatment of various inflammatory
affections of a surgical character. The influence of position both in the normal
and anormal conditions of parts must be familiar to all, and M. Gerdy has but
carried out farther than others and more methodically the application of a well-
known principle, that the circulation in a part is much aided or impeded accord-
ing to whether it be performed in accordance with or against the laws of gravity.
In inflammation of the *fore-arm* M. Gerdy orders the slings to be worn exces-
sively short, so that the hand of the bad limb may lie upon the opposite shoulder,
the elbow being supported in one of the folds of the sling. If the hand is
affected the elbow must be laid upon a pad so as to avoid pressure, and the fore-
arm sustained in a *vertical* position by means of cushions. The elevation is
accomplished in another manner in M. Gerdy's wards with great success, when
the patient possesses sufficient docility, viz. by fastening the uninflamed fingers to
the rope by which the patient assists himself in turning in bed. The sound
fingers must be previously carefully bandaged, however, so as to avoid all in-
jurious pressure. If the patient feels fatigued, the rope, which as it were sus-
pends the limb in the air, may be from time to time loosened, taking care however
not to allow it to fall into a dependent posture. The means is of an easy appli-
cation, also, in respect to the *lower extremity*. M. Gerdy raises the end of the
bed by placing a chair under it, thus raising the foot upon the summit of an in-
clined plane. Once so placed, and care taken that no injurious pressure is exert-
ed, the patient must not move from the position even to satisfy natural wants:
for he may destroy in a few minutes all the benefits which have been obtained by
whole days of repose. Although elevation cannot be so efficaciously applied to the
head and *trunk* as to the extremities, it yet may be employed to a certain extent.
Supposing the *eye* is inflamed, the patient will lie with his head high, and on the
opposite side to the one affected. Why are inflammatory affections and discharges
from the *womb* so tedious in recovery, but for the stagnation of the blood in the
organ? Let a woman, who has been accustomed to keep herself in the vertical
posture, go to bed and raise her hips by means of pillows, and she will soon find
her case amended. The same principles apply to inflammatory affections of the
face, breasts, &c.

The efficacy of elevation is not confined to inflammatory affections, but extends
to *hæmorrhages, ulcers,* &c. By attention to it, uterine hæmorrhages may be mate-
rially mitigated. So too in M. Gerdy's wards in this way have *varicose ulcers of
the legs* been frequently radically cured without any other treatment whatever.
In partial dropsy of the cellular tissue the means is efficacious, and thus *œdema of
the limbs* disappears which persisted if mere horizontal, or an insufficiently raised
position only was resorted to. Even when dependent on disease of the heart,
œdema of the feet may be thus dissipated in a few hours. *Hydrocele* and *articu-
lar dropsy* have frequently been reproduced by the patient being allowed to go
about with the parts in a dependent position. The benefit of position in *varix* and
varicocele is indubitable, and M. Gerdy feels certain that these troublesome affections
might be cured as well as relieved, could it be long enough maintained. *Hæmor-
rhoids,* which are indeed little else but varices of the veins of the rectum, may be
advantageously treated by raising the pelvis while the patient is in bed, the hori-
zontal position not sufficing for disgorging the vessels and relieving the distressing
pains. Such persons should not sit on cushions with apertures in them, which do
not support the margin of the anus. It follows from what is here said, that in
some diseases the elevated posture alone suffices for their cure, and that in many
others it is a powerful auxiliary. The paper is illustrated by several cases.—
Archives Generales, T. xii. p. 295—313.

OBSERVATIONS ON THE USE AND ABUSE OF MERCURIAL PREPARATIONS,
ESPECIALLY IN INFLAMMATORY AFFECTIONS. By Dr. SICHEL.

Administered gradually and for a sufficiently long period, mercury induces the phe-
nomena of scorbutus, that is of an affection of a diametrically opposite character to
inflammation, being attended with a *diminution of the plasticity of the blood.* So
important a medicine, given in non-purgative doses, is it, that we should as soon
think of practising without the aid of the lancet as without it. It is an error to re-
gard it as stimulant on account of the slight temporary irritation it causes. Never-
theless, in treating phlegmasiæ, we should avoid those of its preparations which
most partake of this character.

The *antiplastic* agency of mercury is also exerted upon other diseases, which,
without being strictly inflammatory ones, depend upon a too great plasticity of
the fluids and a too energetic reproduction. This is the case with *syphilis,* upon
which, in our opinion, mercury exerts no *specific* effects, but acts only by im-
poverishing the blood. As, however, this disease is chronic, and often inveterate,
and insinuates itself into the different systems in a manner in which inflamma-
tion does not, we should employ the most active preparations of the metal which
are not so well adapted for the treatment of mere inflammation. Independently,
too, of their antiplastic action, they exert a beneficial effect by stimulating the
absorbent system. In chronic diseases, active mercurials should be administered
for a long period in small doses, while for acute diseases medicines are required
of which the dose may be sufficiently increased to ensure the prompt production
of the required effects. These more active preparations (such as the deutochloride,
the iodides, the red oxide, &c.) are also indicated in other non-syphilitic chronic
diseases, dependent upon a slow phlegmasia or an excess of reproduction.
Nothing can be more useful than their employment in certain tumours of the soft
or hard parts, and some impetiginous or scrofulous affections which seem to verge
on cancer. In this last case mercury, combined with iodine, is, of all means, the
most efficacious, when the disease has not yet passed the stage in which we some-
times see it arrested and even disappear during the atrophy of the organ affected.
In the eye at least, we have several times seen, under the influence of these two
medicines, encephaloid terminate in atrophy of the globe, without relapse or loss
of general health.

If in treating inflammation and chronic disease we give mercury in doses which
excite the gastro-intestinal membrane we lose some of its most important effects,
owing to its not remaining long enough within the economy to exert any direct ac-
tion upon the blood.

A substance so energetic must necessarily be a dangerous one when adminis-
tered by an inexpert hand. We may advert to the principal *cautions* which
should be observed. 1. The *diet* must be in no-wise stimulant and as little
nourishing as possible. If this is not attended to, the plasticity of the blood
becomes augmented. 2. All notable change of atmospherical *temperature* should
be avoided. Unless this rule is observed, numerous disappointments will occur,
and premature salivation is especially likely to be induced. 3. It is a general
law that the *special physiological action, or the toxical effect, of a medicinal sub-
stance only manifests itself after its action upon the pathological condition* has
become exhausted. The operation of this law is well seen in the employment of
narcotics in those affections of the venous system which afford distinct indications
for their use, as neuralgiæ and tetanus. This last, we know, demands large
doses of opium, but the point of saturation must be carefully watched; so that
the drug may be laid aside when the precursors of narcotism begin to replace the
tetanic symptoms, unless we wish to see, as I have often seen in the hospitals,
the patients cured of the tetanus to die of the poisoning by opium. The physio-
logical action of mercury is exerted upon the salivary glands, and with the earliest

precursory symptoms of salivation the blood has already lost some of its morbidly plastic character. It is indeed remarkable to what an extent acute inflammation becomes relieved upon the appearance of the precursors of salivation, and how long these are in making their appearance in intense and essentially exsudative inflammations, as iritis peritonitis, and especially puerperal peritonitis. In this last we are sometimes suprised at finding the abdomen, which the evening before could not endure the weight of the clothes, supporting next day firm pressure with the hand—the precursory symptoms of salivation having manifested themselves in the interval. These are, indeed, the signs of the system having become sufficiently saturated with the mineral, which must be left off as soon as they appear, our object not being, save in very rare and obstinate cases, to excite actual salivation. Instead of then pushing on the mercury, if the disease does not yield, we must, in the case of inflammation, have recourse to other antiphlogistics, and, in the case of syphilis, to iodine, sudorifics, &c.—carefully limiting the regimen, and avoiding exposure to cold. When, however, the precursory symptoms are dissipated, and the disease has yet not yielded, we may recur, again and again, to the mercurial. In syphilis this is almost always necessary.

It is from the non-observance of the above rules that so much mischief has been caused by this remedy, and so much prejudice has been raised against it. The excitement of profuse salivation is especially mischievous. The anti-plastic action of the drug may, after long use, so diminish the coagulability of the blood as to produce a *mercurial scorbutus,* very difficult to cure. It never occurs, however, until long after the induction of salivation, and may be prevented by withholding the drug on the appearance of the precursory symptoms, and recurring to it only after their complete disappearance, if necessary. *Marasmus* may likewise be produced, especially in children and aged persons, if mercury be employed sufficiently long to induce ptyalism or diarrhœa, or the two conjointly. Calomel particularly, must be given with great care to such subjects. It is not sufficient to withhold it when salivation or purging already exist; but at every visit the condition of the salivary organs and digestive tube must be carefully enquired into. From neglect of this precaution infants often suffer severely from the prolonged use of calomel.—*Revue Medicale,* Nov. 1846.

On Latent Pneumonia. By Dr. Saucerotte.

Latent Pneumonia has only of late years sufficiently attracted notice, and indeed it has only been described with any accuracy quite recently by M M. Sestié, Grisolle and Raymond. No observer, that I am aware of, has endeavoured to attach this condition to any prevailing medical constitution, it having been always explained as an individual and exceptional circumstance. Thus, M. Sestié states that pneumonia would not be latent but for the obscurity of the physical signs, and the negligence of those who should seek them. This certainly explains why *pulmonary phlegmasia* is often unknown; but furnishes no account of the specific nature of the morbid form of disease we have to do with. The important point to bear in mind is, that there is a description of pneumonia which does not follow the ordinary course, or exhibit its usual symptoms; and which *from the very first* tends to run into a state of hepatization. It is a form of disease which certain medical constitutions favour the development of, as I observed in our garrison at Luneville, where it prevailed in 1844 and 1846, while in other years it is never met with there.

The entire series of symptoms which characterise pneumonia may be absent, or so slight as to lead to the referring them to different and slighter causes. In general, however, auscultation and percussion do not betray us; but these in

affections apparently so slight and so different are frequently not resorted to. M. Saucerotte thus reviews the cases which fell under his care.

Precursory Symptoms.—These were usually ill-developed, referrible to the general system rather than to any particular portion of it. They consisted of lassitude, loss of appetite, shivering, &c.; but these were so frequently of so little amount as to enable the soldier to perform his duties only a short while before extreme hepatization was discovered to exist.

Symptoms.—The heat of the skin of the thorax so characteristic of pneumonia was never observed, and the pulse continued of the normal number. Little or no difficulty of respiration prevailed, at least as long as the patient continued quiet. A very distinct and generally pretty extensive dulness on percussion was observed, and bronchial respiration and bronchophony existed. In some cases there was a little crepitation around the hepatized portion of lung. The cough was generally very slight, and sometimes did not exist at all.

Duration.—This was very variable, according to the constitution of the patient, the treatment adopted, and many other circumstances. The soldiers often obtained leave of the absence during their convalescence; but among those who remained the patient would sometimes struggle against the disease for months before he succumbed.

Diagnosis.—Pleurisy is the affection with which it has been most generally confounded, a matter of little consequence considering that the same treatment will relieve both diseases. In pleurisy there is less frequently absence of pain in the side; no elasticity of the walls of the thorax on percussion, while the dulness changes its site according to the position of the patient. At a certain stage of the affection there is œgophony, the absence of respiratory sounds if the effusion is considerable, and thoracic vaulting. The disease cannot for any long period be confounded] with phthisis. The various acute and chronic affections of the lungs, whether anterior or inter-current, are sometimes masked by, or mask the pneumonia.

Prognosis. —It is a general rule that the more a disease is removed from its regular type, and becomes anomalous, the more dangerous it is; and latent pneumonia offers no exception to this. The prognosis was of the gravest character, especially when the affection had made great progress.

Anatomical Lesions.—The soldiers being usually removed when seriously ill, M. S. made but a few autopsies. In the cases he examined he found the grey induration with a variety of concomitant lesions.

Etiology.—Soldiers exposed to various anti-hygienic influences are especially liable to pneumonia; and in the year 1844 and 1846, the latent form was often met with. It is at the end of Winter and after exposure to cold, that the disease especially shows itself. The uniformity of the dress of soldiers, whatever may be the susceptibility of their pulmonary organs, leads to frequent attacks of pneumonia during the atmospheric vicissitudes so common at the commencement of Spring.

Treatment.—The absence of febrile re-action forbad large bleeding. I have usually bled but once, and then resorted to cupping or leeches, passing at once to the use of antimony and the application of a very large blister.—*Gazette Medicale,* No. 50.

On Epidemic Erysipelas as it prevailed in the Beaujon Hospital at Paris. By Dr. Neucourt.

Prior to January and subsequently to March, 1843, a case of erysipelas rarely manifested itself among the patients of this hospital, eighty-four in number; but during January and February it raged as an epidemic, attacking every patient having any breach of surface. The description of the attack may be naturally divided into two periods; during the first of which (10th to 25th Jan.) fewer persons were the subjects of it, but in these it proved exceedingly mortal, while during the second (and a longer period) a much larger number of persons became affected with a much milder form of the disease. It is indeed in accordance with the history of most epidemics, that the persons first attacked suffer most severely; so that we may apply to them the celebrated dictum delivered by Sydenham in reference to treatment—*In morbis epidemicis, væ primis.* The patients so attacked were almost all already in a debilitated condition, and they sank under the influence of the disease as if they were poisoned—the local lesion in fact being the least grave part of the disease. At the same time, an ill-condition of all the wounds in the hospital manifested itself, indicating the necessity of abstaining from operations. In this first series of cases the erysipelas was palish or violaceous, atonic rather than inflammatory, and leaving livid traces after death. Gangrene readily formed. The general symptoms were those indicative of extreme prostration—an absence of thirst being notably associated with a dry, brown tongue. Post-mortem examination revealed no cause of death in the condition of the viscera or blood-vessels.

Only a few individuals became the subjects of this serious form of the disease; but during its *second period* every patient in the hospital suffering from wounds was affected.. A blister, bleeding from the arm, or any other slight cause, served to induce it. The local symptoms were those ordinarily characterising the disease. The general symptoms were very different from those observed in the first cases; for, instead of the dry, brown tongue, that organ was observed to be broad and white, or sometimes yellowish; the mouth was bitter and pasty; the thirst frequently intense. Nausea and frequent bilious vomitings, disgust for food, sense of uneasiness at the epigastrium, and constant constipation, were other symptoms referrible to the condition of the digestive canal. These symptoms constituting the *embarras gastrique* of Pinel, the *gastric fever* of Frank, and the *bilious fever* of Stoll, are dwelt upon by the author as of leading importance.

These two conditions, *erysipelas* and *embarras gastrique*, invariably coincided; but M. N. does not pretend to decide which acted as cause, which as effect. Nevertheless, in several cases, the *embarras* preceded the erysipelas, while at the same period a great many other patients presented the same symptoms of disorder of the digestive canal, sometimes occurring idiopathically, and at others united to amygdalites, bronchial catarrh, or sometimes to erysipelas of the face. It would indeed seem to constitute what the ancients termed the epidemic genius of the diseases of the season. Certain it is, that as the *embarras* became increased or diminished, so did the erysipelas; and that the most certain mode of relieving the disease of the skin consisted in attacking that of the stomach.

The condition of the *pulse* was markedly different in the two series of cases; for, while in the first, it was small, rapid, or intermittent, in the second, it was large and full,.and rarely exceeding 100—generally below it. Its fullness and softness indicated that depletion was seldom required. One symptom—*cephalgia*—offered remarkable intensity and persistence, and which was equally present when the erysipelas affected other parts than the head. It is well known that cephalgia is a frequent symptom of simple *embarras gastrique;* but it is rarely so intense. The *skin* in the first period was arid, dry, and earthy; in the second,

hot but not burning, and covered with moisture. The disturbed condition of the faculties occurring rapidly in the former was little observed, except in the erysipelas of the head, during the latter. Delirium, indeed, in these cases, did not possess the gravity which it does in other acute diseases. It was not connected with meningitis; for some patients who manifested it would certainly not have been cured had it been so ; while in one who succumbed, after prolonged and intense delirium, no trace of inflammation, or even of congestion, was discovered.

Treatment. 1. *Evacuants.*—The changes which the skin undergoes must be looked upon as a mere epiphenomenon, a symptomatic expression of the disease rather than its essence. The numerous topical applications which have been recommended exert no effect upon its ulterior development, and only a few even influence the progress of the actually existing disease. We have adverted to the marked prominence which the gastro-intestinal symptoms presented, and these were also found in a variety of other affections, and often themselves constituted the entire disease, or complicated other diseases. It is to the relief of disorders of this apparatus that treatment should be especially directed. From remote antiquity, and during successive ages, the evacuant method has been regarded with favour, in the relief of this gastric derangement; and it is upon the effectual use of purgatives and emetics that we must rely in the treatment of erysipelas. During their employment the symptoms gradually yield. If the desired improvement is not obtained, the emetic and purgative must be again and again repeated ; failure has resulted from such repetition not having been enforced. What should we think of a person declining to repeat venesection in pneumonia, because the disease had not yielded to the first one ? The practice of Desault, Tissot, Frank, Boyer, and that of the older surgeons was founded on the recognition of this disordered state of the digestive organs.

· 2. *Bleeding.*—Although emetics and purgatives are not primary agents in treating this second form of erysipelas, yet they are not the only ones, to the absolute exclusion of others, such as bloodletting for example. In several cases, where the febrile reaction has been predominant over the gastric disturbance, it was employed before having recourse to evacuants, as recommended by Sydenham and Stoll. It is in phlegmonous erysipelas especially, in which the inflammatory character is much more pronounced, that it is indicated.

In the first period, the intensity of the symptoms and the rapid progress of the disease rendered all treatment nugatory.

3. *Topical Applications.*—A great variety of these have engaged attention at different periods—each enjoying its temporary reputation. Such means have a purely local action, extinguishing the erysipelas merely where applied. But the affection is far from consisting in a mere local lesion. The general condition of the patient must chiefly occupy our attention, for the relief of the cutaneous affection is not the cure of the disease. Topical treatment is therefore merely accessory ; but yet there are cases in which it is truly valuable. Thus, in respect to recent wounds, especially on the face or head, if erysipelas occurs, and continues for some hours, the reparative power becomes arrested, and union by the first intention impossible. This unfortunate result may be prevented if we possess a topical application capable of preventing the development of erysipelas, or notably abridging its duration after it has become developed. None of the means hitherto proposed possess the power of preventing its development; but some of them, and among these the *sulphate of iron* according to M. Velpeau, seem to exert an influence on its duration. Certain it is that, like cold water, it much assuages the pains, frequently very severe, of erysipelas.—*Archives Generales,* Tom. xii. pp. 414–456.

(Dr. Neucourt illustrates the various points adverted to in his paper by severa

cases, which are perspicuously detailed; but we regret that he has furnished no statistical account of the total number of persons attacked, proportion of recoveries, &c. We regard the paper as a very useful one in directing attention to the general rather than the topical treatment of erysipelas, and especially to that perverted condition of the alimentary canal which is equally met with in sporadic cases as in the epidemic detailed. We feel surprised, however, to find that he thinks very lightly of the *nitrate of silver* even as a mere accessory means in the case he has indicated. Conjointly with appropriate internal medication we have seen it render important services—although these have certainly been exaggerated by some writers.— *Rev.*)

On the Nature of Insanity, and its Treatment by Irrigation and Prolonged Baths. By M. Brierre de Boismont.

M. Brierre de Boismont recently presented to the Paris Medical Society a Report upon a Memoir by Dr. Turck upon the *Nature and Treatment of Insanity.* He comments upon some of the Theories of Insanity which have prevailed. Broussais, as is well known, affirmed that insanity always arises from irritation of the brain (and in this statement he has met with many more supporters in this country than he has for his views on gastro-enteritis), but M. B. asks "who has seen the irritation of these capillary vessels? What are the anatomical characters? Most mad-doctors do not admit the existence of pathological lesions, or only regard them as consequences of the disease. I dissected, with M. Bricheteau, the brain of a madman, who had been the subject of intermittent mania for 12 years, and who died after an attack of acute hydrophobic delirium of 12 days' duration, and we were unable to indicate any appreciable lesion. The same thing occurred with respect to an imbecile woman who, after inhabiting my establishment for 18 years, also died after a third attack of acute delirium. It is endeavoured at all hazards to explain the disorders of the mind by anatomical considerations, even when we are quite unaware of what material change takes place in the brain and nerves for the execution of their functions. Every day we observe the most varied and gravest morbid changes without their exciting any influence in producing a state of insanity. The greater or less afflux of blood can so little be considered as the necessary cause of insanity, that frequently apoplexy induces no change in the functions of the intellect, even at the time that effusion has occurred, or paralysis is present. In the physiological condition, the general circulation (as may that of the carotids by some local malady) may be accelerated without the reason suffering. So far from inducing insanity, the greater afflux of blood to the brain induces sleep and somnolence. M. Moreau has of late endeavoured to revive the above theory, by stating *maniacal excitement* to be the primary modification of the intellect, and essential condition of the manifestation of any description of insanity. But this word *excitement* means an excess of organic action, and while this will induce certain forms of insanity, others are produced by quite opposite causes. Cerebral anæmia gives rise to insane conceptions as well as hyperæmia. If febrile excitement induces cerebral disturbances, we observe such disorders only commence in many cases when the decline of the fever has plunged the patient into a state of sinking. With an excitement represented as always 'identical in itself,' the most varying forms of insanity have all the same point of departure. A woman sees her child perish, she becomes stupefied and falls into a kind of imbecility, and are we to refer her case to this maniacal excitement? A man, towards the end of a chronic disease which has reduced him to the last stage of marasmus, is seized with a mild form of delirium, in which he believes he is quitting the hospital and following his occupation. Are we to refer this to the same cause? According to this theory,

more or less vigorous antiphlogistic treatment should necessarily be put into force. Now, a man is brought to you in a state of furious delirium, and you bleed him until he becomes calm, and the result will frequently be an incurable dementia. Many monomaniacs are much injured by bleeding; and many others recover from their hallucinations by moral treatment alone; and even M. Moreau, the founder of this variety of the. irritation of Broussais, states they are frequently relieved by the *datura stramonium.*

"M. Leuret has not sought the cause of the disease in cerebral changes, but states that it may exhibit itself unconnected with any physical symptom, and that it is but an error of the mind, a purely moral disease calling only for moral remedies—our object being to substitute one impression or passion for another. Attributing insanity to a disease of the mind may appear revolting to spiritualists and excite the smiles of the materialist; but we must admit that the question is not so simple as it seems. Elsewhere I have endeavoured to suggest another theory, by establishing that man's ideas spring from two sources. He lives in the midst of an atmosphere of false ideas proceeding from his senses, from education and the social condition in which he exists, and it is there we must seek for the origin of manias, monomanias, &c. In this way we can understand how certain ideas may become diseased, without the divine breath which animates him being implicated. In this point of view, the beautiful results which have attended moral treatment are intelligible enough. We are, however, far from denying the existence of cerebral change, although this as yet has not become appreciable; but it is but a secondary fact in the doctrine of mental diseases, important though it often is in its therapeutical relations."

M. De Boismont next refers to M. Turck's theory which indicates *the skin as the generating organ of insanity* (!), by reason of the disturbance in the product of the electricity of the body its disordered condition induces. We need not waste time in following the exposure of the fallacies of such a doctrine; but may proceed to state the author's mode of treatment, which, indeed, in a modified manner, and without any knowledge of M. Turck or his fancies, M. Brierre de Boismont has been in the habit of employing with success for some years, and an account of which he furnished to the Academy of Medicine in 1842 and 1846. M. Turck's treatment consists in the *prolonged use of tepid baths.* The bath must be prolonged "during a whole or several days," and, if required, repeated during a period of several months. One girl was cured by a "single bath of ten days' duration." By such treatment M. T. declares he has cured four-fifths of the cases which have come before him.

M. De Boismont, while regarding this statement as exaggerated, yet attaches much importance to the curative agency of prolonged baths and irrigations. His former conclusions upon the subject are here reprinted. 1. *All the acute forms* of insanity, and especially of mania, may be so cured in a space of time varying from 1 to 2 weeks. 2. The treatment consists in the employment of prolonged baths and irrigations. 3. The duration of the baths should be in general from 11 to 12 hours, but it may be extended to 15 or 18. 4. The irrigations of the head by a gentle stream of water should be continued during the entire continuance of the bath, unless the patient becomes composed, when they may be suspended. 5. When the patient has taken from 8 to 10 baths without marked amelioration they must be suspended, to be resumed at a future period, 6. The temperature of the baths should be from 82° to 86° F., and that of the irrigations 60°. 7. Of all the forms of insanity, acute mania best yields to this treatment, then simple acute delirium, delirium tremens, puerperal mania, and melancholy monomania with acute symptoms; but, in several of these forms of disease, the cures are neither so rapid nor so permanent as in acute mania. 8. Chronic mania with acute symptoms, and chronic mania with agitation, may be ameliorated, but not (as stated by M. Turck) cured by this treatment.—*Revue Medicale,* Nov.

BIBLIOGRAPHICAL RECORD.

1. Guy's Hospital Reports. Second Series. Edited by *George Hilaro Barlow*, M.D., *Edward Cock*. *Edmund L. Birkett*, M.D., and *Alfred Poland*. With Plates. Vol. IV. Octavo. pp. 502. London 1846.

2. A Descriptive Catalogue of the Anatomical Museum of St. Bartholomew's Hospital. Published by Order of the Governors. Vol. I., containing the Descriptions of the Specimens illustrative of Pathological Anatomy. Royal 8vo. pp. 503. London, 1846.

An admirable precedent to the governors of other hospitals.

3. Records of Harvey, in Extracts from the Journals of the Hospital of St. Bartholomew's. Published by permission of the President and Treasurer, with Notes by *James Paget*. 8vo, pp. 51. London 1846.

Will be useful to future biographers of this great man.

4. Report of the Medical Officers of the Lunatic Asylum for the County of Lancaster, instituted 28th of July, 1816. 8vo. pp. 16. Lancaster 1846.

5. A Review of Homœopathy, Allopathy and Young Physic. By *L. M. Lawson*. M.D. 8vo, pp. 34. Lexington, U. S. 1846.

6. Practical Observations and Suggestions in Medicine. Second Series. By *Marshall Hall*, M.D. 12mo, 372. London, 1846.

7. Urinary Deposits, their Diagnosis, Pathology, and Therapeutical indications. By *Golding Bird*, M.D. Second Edition. 12mo, pp. 380. London, 1846.

8. The Moral Aspect of Medical life, consisting of the Akesios of Professor *K. F. H. Marx*. Translated from the German, with Biographical Notices and illustrative remarks. By *James Mackness*, M.D. 12mo, pp. 362. London, 1846.

9. A Guide for the proper Treatment of the Teeth, with a view to their Preservation ; containing a popular Explanation of their Structure and Appendages, with Directions for the Management of them in Health, together with Observations on the best Means of replacing them when lost. By *W. Kennedy Bridgman*. Foolscap 8vo, pp. 88. London 1846.

Sensibly written, but addressed too much to the general public.

10. Chemistry and Physics, in relation to Physiology and Pathology. By Baron *Justus Liebig*, M.D. 8vo, pp. 116. London, 1846.

A valuable Essay. It forms a portion of the author's Animal Chemistry, reviewed in our present number.

11. Chemistry of the Four Seasons—Spring, Summer, Autumn and Winter. An Essay principally concerning Natural Phenomena, admitting of Interpretation by Chemical Sciences and illustrating Passages of Scripture. By *Thomas Griffiths*. Small 8vo, pp. 515. London 1846.

12. On the Pathology and Treatment of Serofula ; being the Forthergillian Prize Essay for 1846 ; by *Robert Mortimer Glover*, M.D. 8vo, pp. 327, Plates. London.

13. Animal Chemistry, or Chemistry in its Application to Physiology and Pathology. By Baron *Liebig*. Edited by *William Gregory*, M.D. Third Edition, revised and greatly enlarged. Part I. The Chemical process of Respiration and Nutrition—the Metamorphosis of Animal Tissue. § 1. Method to be pursued in the Investigation. 8vo, pp. 282. London.

14. Lectures and Observations on Clinical Surgery. By *Andrew Ellis*. 8vo, pp. 287. Dublin.   *In our next.*

15. On Medical Education ; being a lecture delivered at King's College, London, at the opening of the Medical Session, 1846-7 ; to which is added, a Lecture delivered on the same Occasion in the year 1842. By *William Augustus Guy*, M.D. 8vo, pp. 64. London.

Contains much judicious advice to medical students.

16. The Microscopic Anatomy of the Human Body in Health and Disease. Illustrated with numerous Drawings in Colour. By *Arthur Hill Hassall*. Parts III., IV., and V. London.

17. The Pathological Anatomy of the Human Body. By *Julius Vogel*, M.D. Translated from the German, with additions, by *George E. Day*, M.A. and L.M. Illustrated with upwards of one hundred plain and colored engravings. 8vo, pp. 614. London.

18. Hand Book of Human Anatomy, general, special, topographical. Translated from the Original German of Dr. *Alfred Von Behr*, and adapted to the use of the English student. By *John Birkett*. pp. 457.

19. Elements of Chemistry, including the Applications of the Science in the Arts. By *Thomas Graham*. F.R.S. Second Edition entirely revised and greatly enlarged. With additional Wood engravings. Part I. 8vo, pp. 160. London.

20. Seventh Annual Report of the Registrar-General of Births, Deaths, and Marriages in England—Abstracts of the years 1843-4. 8vo, pp. 347. London.

21. A manual of the Diseases of the Eye or treatise on Ophthalmology. By *S. Littel*, Jun. M.D Second Edition revised and enlarged. 8vo, pp. 384. Philadelphia.

22. Practical Remarks on Near-Sight, Aged Sight, and Impaired Vision ; with Observations on the use of glasses, and on Artificial light. By *William White Cooper*. 8vo, 296. London.

23. A reply to the Review of Dr. Drummond's First Steps to Anatomy, contained in the British and Foreign Medical Review for April, 1846. 8vo, pp 31. Belfast.

24. Principles of Human Physiology, with their chief applications to Pathology, Hygiene, and Forensic Medicine. By *William B. Carpenter*, M.D. Third Edition. 8vo. pp. 800. London.

25. A Manual of Materia Medica and Therapeutics, including the preparations of the Pharmacopœias of London, Edinburgh, and Dublin, with many new medicines. By *T. Forbes Royle*, M.D. 8vo, pp. 729. London.

29. Observations on Hydropathy, with an account of the Principal Cold Water Establishments of Germany. By *J. Stephenson Bushnan*, M.D. 12mo, pp. 182. London.

27. Liebig's Question to Mulder, tested by morality and science. By Dr. *G. T. Mulder*. Translated by Dr. *P. F. H. Fromberg*. 8vo, pp. 22. London.

28. Lectures on Subjects connected with Clinical Medicine, comprising diseases of the Heart. By *P. M. Latham*, M.D. Vol. II. 8vo, pp. 428.

29. A System of Surgery. By *J. M. Chelius*. Translated from the German, and accompanied with additional notes, and observations. By *John F. South*. Part 14. 8vo. London.

30. Synopsis of the physical signs of the Diseases of the Lungs. By *James Turnbull*, M.D.

31. Medico-Chirurgical Transactions Vol. XI. of the New Series.

32. The potatoe plant ; its Uses and properties, together with the Cause of the Present Malady. The Extension of that Disease to other Plants, the Question of Famine arising therefrom, and the best means of averting that Calamity. By *Alfred Smee*, F.R.S. Illustrated with Ten Lithographs. 8vo, pp. 168. Longman, 1846.

33. Life of George Cheyne, M.D., with Extracts from his Works and Correspondence. 18mo, pp. 141. London, 1846.

34. On Diseases of the Skin. By *Erasmus Wilson*, F.R.S. Second Edition. 8vo. pp. 596. London, 1847.

35. A Treatise on the Plague more especially on the Police management of that Disease. Illustrated by the Plan of Operations successfully carried into Effect in the late Plague of Corfu. With Hints on Quarantine. By *A. White*, M.D. 8vo, pp. 356. London. 1846.

In our next.

36. The Medical Examiner and Record of Medical Science. Edited by *Rob. M. Huston*, M.D. For June, 1846. Philadelphia.

37. Revue Medicale from May to August, 1846.
In exchange.

38. Dublin Medical Review, No. 4.
In exchange.

39. Edinburgh Medical and Surgical Journal, for October.
In exchange.

40. British and Foreign Medical Review, for October.
In exchange.

41. Medical Gazette, October to January.
In exchange.

42. Gazette Medicale, October to January.
In exchange.

43. The American Journal of the Medical Sciences. Edited by *Isaac Hays*, M.D.
In exchange.

NOTICE TO CORRESPONDENTS, &c.

The reference made in our last number, page 488, to a volume of Knight's Weekly Series, should have been to Dr. Lankester's Lectures.

The reader is requested to substitute the figures 20 for 30 at page 493, line 10 from bottom.

We have received a letter from Mr. Parkin, complaining of our notice of his pamphlet on Cholera. Any reader, who will take the trouble to refer to Dr. Johnson's review of the first edition of it in No. 50 of this Journal, may convince himself of the justice of our strictures.

The press of matter this quarter has unexpectedly prevented the insertion of a review of Vogel's Pathological Anatomy, which is in type. We are also compelled to defer notices of Humboldt's Cosmos, Henfrey's Structural and Physiological Botany, Lee's Observation on Mineral Waters, and Gui Patin's Letters, edited by M. Reveillé-Parise.

THE

MEDICO-CHIRURGICAL

REVIEW.

I. Histoire de la Medecine depuis son Origine jusqu'au XIX.
  Siecle. Par le Dr. *P. V. Renouard.* Tom. II. pp. 980. 8vo.
  Paris, 1846.

The History of Medicine, from its Origin until the Nineteenth Cen-
  tury. In two Volumes. By *P. V. Renouard,* M.D.

II. Essai sur l'Histoire et la Philosophie de la Chirurgie. Par
  M. *Malgaigne.* [Bulletin de l'Academie Royale de Medecine,
  December, 1846.]

An Essay upon the History and Philosophy of Surgery. By M.
  Malgaigne.

Much as we admire the practical tendencies of the medical mind in this
country, we feel by no means disposed to approve of that neglect of, or
contempt for, the literature and history of the profession, which we have
reason to believe are increasingly prevalent. It is true we cannot expect
to derive the same amount of instruction which our forefathers believed
themselves to have gained from these studies; but it would be a griev-
ous error to suppose that none of this were obtainable. So omnipotent
is genius, that even when struggling with the defective information of an
early stage of civilization, and surrounded by every obstacle to ordinary
progress, it will frequently realize truths whose stamp is universal, and
send forth previsions of future improvements which an astonished poste-
rity, aided by the lights furnished by the advanced state of every branch
of the accessory sciences, only confirms and chronicles. A great mind
cannot traverse any important branch of human knowledge without leav-
ing impressions, the results of its innermost workings or acute spirit of
observation, which our arrogance alone prevents our profiting by.
  Again: what employment can more suitably fill the leisure time and
period of relaxation of the medical man than an examination into the
different opinions and practices which have prevailed respecting the dis-
eases and disorders of our frames? than in tracing out the fate of doc-
trines, the vagaries of the imagination, and the rude efforts of common
sense? No man should consider himself educated unless aware of what
has been done in the profession he has adopted for his calling in life; and

certain it is that if such information were more generally **diffused, we should** be spared many reproductions of opinions and practices **which history** has already condemned as erroneous or mischievous ; **and we should be** better able to properly estimate others, which, although **novel, have in** their analogues and fundamental characters been **already judged.**

From a study like this we may always rise with gratified **feelings. We** have seen intellects of a gigantic calibre, elaborate research, untiring per- severance, ingenious speculation, earnestly, gloriously, and **often success-** fully engaged in the holiest of wars, that against the evils **which flesh** is heir to, succouring poor humanity in its frailest moments. To this le- gion we may with pride say we too belong, and firmly resolve that never shall act or word of ours derogate from the dignity of so noble an art, and convert that which should nearest approach a divine calling into a mere instrument for the acquisition of wealth.

At no period could such a study be so appropriate as at the present. An unjustifiable scepticism in the powers of our art has been attempted to be raised by some who had better have acquainted themselves with its achievements: but the reader of its history will soon discover that, in spite of the uncertainties which have obscured it, and the ignorance which has impeded it, its career has been progressive, irregularly so, it is true, but still progressive : and will derive encouragement to assist it far- ther onward notwithstanding the existence of so much public ignorance, the prevalence of charlatanism, and the timid prognostications of pseudo- professors.

For these reasons we have determined laying a copious analysis of Dr. Renouard's two volumes before our readers. It is true, an excellent arti- cle upon the History of Medicine, embracing the same period of time, ap- peared some years since (October, 1831) in the pages of this Review; yet, as the period elapsed since this is a long one, and M. Renouard views his subject in a somewhat different light, we feel certain that our readers will thank us for furnishing them with an account of his excellent work.

The following is his account of the distribution of the subject :—

" I divide into three books or ages the whole period of time which has passed away. The *first* age commences in the infancy of society, as far back as historical traditions extend, and terminates towards the end of the second century of the Christian æra, at the death of Galen, in the reign of Septimus Severus. This lapse of time constitutes for medicine the *foundation* period. The germs of the art of healing, concealed at first in the instinct of man, are insensibly developed, the bases of the science are laid, and great principles are discussed. The human intellect, always impatient, exceeds in its speculations the limits of the known and the possi- ble. Many branches of the art, such as symptomatology and prognosis, are carried to a remarkable degree of perfection.

" The *second* age, which may be termed that of *transition*, (extending from the death of Galen to the revival of letters, at the end of the 14th century,) offers few materials for the history of Medicine. We no longer observe the struggles or dis- cussions between the partisans of different doctrines. The medical sects are con- founded with each other. I cannot better depict this epoch than by comparing it to the chrysalis stage of insect life. While nothing appears changed externally, an admirable metamorphosis is operating within, the progress of which is no-wise re- vealed. The eye of man only perceives the marvel when it has become accom- plished.

" Thus, from the 15th century, when the *third* and last age of medicine, that

of *renovation*, commenced, Europe offers us a spectacle of which the most bril-liant periods of Rome and Athens can give us no idea. A new life seems to have become infused into the veins of the inhabitants of this part of the world. Science, the fine arts, commerce, manufactures, religion, social institutions, all undergo change, or are about to do so. A crowd of schools are opened for the teaching of medicine ; and establishments of which the ancients furnished no models are cre-ated, with the object of extending to the poorer classes the benefits derivable from the art of healing. The ingenious activity of the modern Christians undertakes everything, and suffices for everything.

" These three great chronological divisions, however, do not suffice for the clas-sification in the mind of the principal phases of the history of medicine; and I have therefore subdivided each age into a small number of sections, easy of reten-tion, which I have termed periods. The first age contains four of these, the second and third each contain two."—P. 21.

The following synoptical Table best exhibits these :

I. The Age of Foundation.	1. Primitive or Instinctive Period	Terminating with the fall of Troy B. C. 1184.
	2. Sacred or Mystic Period	Terminating with the dispersion of the Pythagorean Society, B. C. 500.
	3. Philosophical Period	Terminating at the Foundation of the Alexandrian Library, B. C. 320.
	4. Anatomical Period	Terminating at the death of Galen, A. D. 200.
II. The Age of Transition.	5. Greek Period	Terminating at the Destruction of the Alexandrian Library, A. D. 640.
	6. Arabic Period	Terminating at the revival of Lite-rature in Europe, A. D. 1400.
III The Age of Renovation.	7. The Erudite Period	Comprehending the 15th and 16th centuries.
	8. The Reformatory Period	Comprehending the 17th and 18th centuries.

" In this distribution of by-gone time, that portion of the 19th century which we have passed through is wanting. I have expressly excluded it, for the following reasons. Is it possible, I have enquired of myself, to unite contemporary history with the same independence of mind and feeling as that of past times ? Secondly, is it not fitting, when speaking of living authors, to omit all biographical details ? Thirdly, is it not to be feared I might exaggerate the importance of contemporary opinions and discoveries ? And fourthly, can we so well seize the general physiognomy of an epoch in the midst of which we live ? All these considerations have led me to fear not being able to treat the history of our own times upon the same plan as the history of anterior periods, and have induced me to terminate with the end of the 18th century."—P. 22.

M. Renouard enters upon his task with the determination that his ex-amination of the various doctrines which have prevailed shall be complete

and impartial, and to their due consideration he believes collateral illus-
trations, derived from the condition of the individual promulgating them,
and of the countries in which they flourished, and from prevalent systems
of philosophy, essential.

" Celebrated physicians not only exert by their writings an influence upon the
progress of the science and the consideration in which the art is held ; but they
also influence these by their oral instruction, their character and their conduct.
Their lives frequently offer models for imitation, and sometimes faults to be avoided.
Frequently, also, the early education of a man, and the circumstances amidst which
he is placed, explain to us the direction of his genius, and furnish the key to
his successes and reverses.   For these reasons I could not entirely neglect the
biographical details relative to the famous physicians, especially when such details
had some connection with the general history of the art, or comprised some moral
lesson.
" The sciences do not progress separately from each other, but proceed, so to
say, hand-in-hand, so that it is rare when their progress is not simultaneous.   Never-
theless, an exception to this rule presents itself in the history of the human mind
in Europe.   During the middle ages, theology and dialectics were cultivated with
success, while other branches of human knowledge, and especially medicine, vege-
tated in the lowest degradation.   But after the 14th century, industry, the sciences,
and the arts awoke from their prolonged sleep.   On the one hand, the civil and
political organization of European nations became regulated and their material
well-being augmented ; and on the other, the intellectual and moral faculties of
the individual members of society became more developed, and thought took a
freer, a bolder, and a better direction.   It seems to me that the historian would fall
short of one of his obligations if he did not, from time to time, cast his eye upon
the general condition of society ; and therefore, at the commencement of each of
my chronological periods, I have given a rapid sketch of the aspect which civiliza-
tion then put on.
" Another very remarkable fact, and one of capital interest in the history of medical
theories, is that they are all derived in a manner more or less immediate from some
system of philosophy.   Thus, one would have but an incomplete notion of these
theories, if we were ignorant of the philosophical source whence they have sprung.
But we must not attach too much importance to these analogies, nor pretend to
judge the value of medical theories by them.   It must not be forgotten that a philo-
sophical system may be false in its generality, and yet true in the particular ap-
plication of it which is made to medicine.   In like manner, from an irreproachable
philosophical system, we may deduce by false reasoning an erroneous medical
theory.   Therefore, after having indicated the philosophical ideas with which any
medical doctrine seems to be allied, we shall examine this by itself in relation to
its practical consequences."—P. 11.

M. Malgaigne, in like manner, in his Essay on the Progress of Surgery
from the time of Hippocrates, lays great stress upon the extent to which
this was favoured or impeded by its connexion with the various prevalent
philosophical systems.   He divides the space of time into six periods, and
thus designates them :—1st Period, The Socratic Philosophy and Hippo-
crates.   2d. The Platonic Philosophy and Galen.   3d. The prevalence
of the dogmas of authority ; the surgery of the Lower Empire, and of the
Arabs.   4th. The Reform of Luther and Ambrose Paré.   5th. The
Philosophy of Descartes and J. L. Petit.   6th. The Philosophy of Bacon
and John Hunter.

I. The Age of Foundation.

[Extending from the Origin of Society to the End of the Second Century after Christ.]

1. *The Primitive Period.*

[Of a different duration among various nations.]

M. Renouard judiciously avoids imitating Sprengel and other writers in dwelling at great length upon the earliest and mythological portion of the history; and we need not follow him even in the cursory account he gives of the state of the Art of Healing among the Egyptians, Hebrews, early Greeks, Hindoos, and Chinese. The materials are too scarce to admit of any authentic narrative being deduced, and an excursion into the realms of fable and imagination, however interesting to the poet and metaphysician, would only be to divert the attention of the medical enquirer from more profitable paths of enquiry. For this reason we need not advert to the short account which M. Renouard gives of Æsculapius and his disciples, merely stating that he considers Machaon and Podalirius to occupy the confines which separate mythology from history—their biographies offering a mixture of fabulous tales and probable relations. Homeric song, by the honourable portion it assigns them at the siege of Troy, places their actual existence beyond a doubt; but their filial relation to Æsculapius, himself, in all probability, a fabulous character, is indeed problematical.

2. *The Mystic or Sacred Period.*

[From the taking of Troy, B.C. 1184, to the Dispersion of the Pythagoreans, B.C. 500.]

Whatever may have been the reality of the existence of Æsculapius, certain it is that *temples* dedicated to his worship were spread over the whole of Greece, and were found in Asia, Africa, and Italy. The priesthood attached to them, under the name of Asclepiades, or descendants of Æsculapius, formed a separate caste, governed by secret statutes. The temples were located on the healthiest sites, surrounded by cheerful vegetation, and resorted to by the sick from all parts. Appropriate regimen, pure air, and a lively faith in the recorded miracles, doubtless frequently achieved a cure; but, while the priesthood surrounded their votaries with every appliance calculated to make a notable impression upon the imagination, they likewise had recourse to special remedies suitable for the various diseases; and prescribed, on occasion, bleeding, purging, vomiting, sea-bathing, and the various therapeutical resources accessible to them. Although bound to secresy by their vows, the priests consented to reveal their practices to those who qualified themselves for the disclosure by initiatory observances; so that at each temple, in all probability, a kind of medical instruction was going on. Of all these temples that at Cos has enjoyed the greatest celebrity from the number of illustrious physicians it formed within its walls. Among the sources of instruction special to this period were the votive tablets, suspended upon the columns and walls of these edifices, and indicating the name of the patient, the disease he was the subject of, and the means employed for its removal.

These were probably of little service beyond the re-assurance they imparted to the worshippers; and it is presumable that the Asclepiades prepared in private a more detailed account of the cases which came under their notice ; for a long-continued habit of observation and description can alone account for the excellent taste and precision characterizing some of the Hippocratic books.

During the Mystic Period, *Therapeutics* were based on no form of reasoning, Hippocrates, Celsus, and Galen all agreeing that, prior to the introduction of Philosophy into the science of medicine, that is prior to Pythagoras, empiricism exclusively prevailed. "Not a rational empiricism, however, which only took its rise much later in the Alexandrian School, but the natural, instinctive empiricism, such as is followed by persons ignorant of the medical art, when they proffer their experience of the virtues of certain remedies in given diseases. Indeed, gross as the reasoning of such persons may seem, it is yet based upon an incontestible principle which may be thus laid down. Any remedy which has cured a disease ought equally to cure diseases resembling the first one." The difficulty here is to establish the positive identity of the diseases in question, however much in some points they may resemble each other ; and, just in proportion as our diagnosis becomes more perfect, we shall be in less danger of confounding morbid states essentially different, and better able to separate them from others which they only superficially resemble. The importance of improving our means of diagnosis has attracted the attention of eminent practitioners in all ages ; but the mere collections of symptoms, however large, made by the Asclepiades, were manifestly inefficient to this end. The following is M. Renouard's recapitulation of his account of the Mystic Period.

"During the space of about 800 years which this historical period embraces, medicine underwent in Greece its earliest transformation. From being domestic and popular it became sacerdotal, surrounding itself with the apparatus of mystery. Up to that time, princes, captains, and even shepherds, acquired a reputation for skill in this art : but, after the siege of Troy, we only hear of consultations held in the name of the Divinity, in temples or some celebrated caverns. Not that there were not even at this period men besides the priests who intermeddled with the treatment of disease and sold remedies ; but scientific medicine, if we may so term the limited knowledge then possessed, was confined to the sacerdotal class, among whom alone it was perpetuated by uninterrupted tradition, and slowly developed amidst darkness and silence.

" 'This practice of medicine in the temples of Æsculapius,' says M. Gauthier, 'may be divided into two epochs. In the first, which extends down to Hippocrates, the Asclepiades, although for the most part employing but superstitious remedies, rendered good service to science by the taste which some of them manifested for observation. It must be admitted that, in a barbaric period, medicine would make more progress in the hands of a corporation like the Asclepiades than if it had continued domestic and popular. It was hardly probable that, at so remote a period, when art and science were yet in their infancy, a man of genius would suddenly appear, who would elevate medicine to the rank of a science. In the second epoch, which extends from the time of Hippocrates to the Christian æra, the medicine of the Temples gradually degenerated, and consisted generally in but a gross jugglery. * * * * * * * It is difficult at the present time to appreciate the amount of information possessed by the priests of the Temples, and the progress made by medicine in their hands. As

there have always been found persons who have shown a tendency to admire all that is ancient, it is not surprising to find, both among the ancients and moderns, writers who have vaunted beyond all measure the Asclepiadal medicine. On the other hand, some writers deny that they possessed any information whatever. Thus, M. Malgaigne is desirous that the Asclepiades should retire to that obscurity from which they should never have been withdrawn, and proposes to erase them from the history of surgery and medicine. We believe both these extremes are erroneous. It is probable that perusal of the inscriptions in the temples, and the custom of seeing a great number of sick there, eventually conferred a certain amount of medical knowledge upon the priesthood.'

" This seems to me the most rational conclusion concerning this very obscure portion of the history of medicine. When authentic documents are wanting the imagination allows itself a free course, and upon this occasion, that of the erudite has not been sterile. But in the midst of the contradictory opinions which have been entertained upon the real amount of knowledge of the Asclepiades, that held by M. Gauthier, I repeat, seems to me the most probable and the best founded.

" At last we are now arriving at an epoch in which the art of healing undergoes a new metamorphosis far more interesting for the historian and the philosopher, and far more advantageous for humanity. Until this period, the edifice of medicine had been constructed of materials taken at hazard, and usually collected together without taste or method. No idea of arrangement or premeditated design had directed the researches of the men who made the earliest discoveries. But, in future, reason and genius extend and perfect that which chance and instinct had but sketched out. The scientific monument of this difficult art is about to rise grand and majestic, gradually harmonizing in all its parts. We shall follow its progress through the various periods, no longer by the aid of vague conjecture, but by the succour of authentic documents, and of more or less faithfully preserved remains. We shall no longer be reduced to divine the innermost thoughts of the labourers, at the different phases of its elevation. We shall read this imprinted in intelligible characters upon the fragments of their works which have descended to us."—P. 111.

3. *The Philosophic Period.*

[From the Dispersion of the Pythagoreans, B. C. 500, to the Foundation of the Alexandrian Library, B. C. 320.]

In this period the priesthood yield the scientific sceptre to the philosophers, thus divesting it of much of the mystery with which it had been surrounded. Hippocrates traces with great sagacity the various circumstances derivable from climate, manners, and political institutions, which serve to explain the progressive character of European as contrasted with Asiatic knowledge ; and he deems the Hellenic race at the epoch at which we have arrived, as placed in conditions especially favourable for the development of their moral and physical faculties. The vestiges of the ancient Indo-Egyptian civilization, which formed the earliest model of that of Greece, insensibly disappeared ; and the sages of the country, so far from having to wander into distant lands in quest of information, were enabled to render their own country a centre for the enlightenment of the rest of mankind.

M. Renouard furnishes us with brief descriptions of the life and doctrines of Pythagoras, and of the foundation and dispersion of the Italic sect ; but, as these have very slight bearing upon the history of medicine, we pass at once to his account of the works and labours of

Hippocrates.

Hippocrates was born in the island of Cos, about the year B. C. 460, of a family in whom the practice of medicine had long been hereditary, professing, as it did, to trace its descent direct from Æsculapius. Few particulars of his life are known, and the epoch of his death has been very variously stated. He was, however, a cotemporary, and somewhat younger than Socrates, and flourished in that celebrated Periclean age, when art and science attained their highest splendour in Greece. The temple at Cos being the most celebrated of those dedicated to Æsculapius, he was surrounded with favourable opportunities; but, not content with these, "he traversed also the principal Greek towns of Europe and Asia, discoursing with philosophers, visiting the gymnasia (then become schools of medicine), giving his services to those who sought them, and everywhere accumulating observations, not only upon particular diseases, but upon epidemic constitutions, the influence of manners, climate, regimen, &c." Knowledge so amassed and displayed in his immortal works, procured for him that admiration of his cotemporaries which posterity has so amply confirmed. His children and grandchildren pursued the same profession, and unfortunately affixed his name to the works which they produced, so that, even shortly after his death, it became a matter of difficulty to distinguish what was really his. This difficulty increased with time, both by reason of the ignorance and carelessness of copyists and the trickery of the vendors of books, who, according to Galen, did not scruple to attach the name of Hippocrates to works composed long after his death. The large prices paid for works bearing his name, especially at the period of the formation of the Alexandrian and other libraries, gave encouragement to this fraudulent procedure. An immense number of commentators, from Galen downwards, have occupied themselves in distinguishing the true from the apocryphal writings, and M. Littré, in the introduction to his new translation, enters into the question at great length and with much ability. M. Renouard only accepts as the legitimate productions of the Hippocratic pen, the writings which the principal critics are unanimous in allowing as authentic. "These are the Essay on Prognosis; some of the Aphorisms; the 1st and 3rd books of the Epidemics; On Regimen in Acute Diseases; On Air, Water and Places; On the Joints and Luxations; On Fractures, and the Instruments of Reduction. These do not comprehend a fourth part of the entire collection; but, even so reduced, if judged of by the period in which they were composed, they amply justify the enthusiasm of cotemporaries and the admiration of posterity."

M. Littré has shown that the "Hippocratic Collection" of works, as known to us, could not have been entirely published prior to the foundation of the great libraries at Alexandria and Pergamus. The major portion of the writings remained in the hands of the successors of Hippocrates, who only communicated them to their disciples. This collection is formed of various fragmentary portions contributed by successive authors, extending over the whole of the period here termed Philosophical—from Pythagoras to Aristotle. As the earliest authentic monument of medical science the collection is worthy of the attention which its intrinsic merits should also command for it, and M. Renouard furnishes a succinct review of the condition of medical science as illustrated by it.

Anatomy was necessarily but little known, as neither Hippocrates nor his descendants ever dissected the human body, a skeleton, however, being said to have existed at Cos. *Physiology*, in the sense we understand it, as explaining the functions of the various organic apparatus, must necessarily be a dead letter to those ignorant of the structure of these. While ignorant, however, of the uses of the muscles, tendons, nerves, &c., these writers indulged in the most transcendental speculations upon the nature and seat of the vital principle. The subject of *Hygiene* is dwelt upon in the books upon Air, Water and Localities, on Regimen, and on Healthy Diet, and that as completely as the information of the period admitted of.

Pathology.—During the period we are engaged in, the animal economy was regarded as an indivisible whole, and the various morbid phenomena as expressions of a general disturbance of the organism rather than of any of its particular portions. Thus, the study of symptoms was pushed to a great extent at Cos, giving rise to the branch of pathology termed *Semeiology*. More than one-eighth part of the entire Hippocratic collection is devoted to this subject. Prognosis embraced what we now divide into diagnosis and prognosis, and being based upon the observation of superficial phenomena, not on a knowledge of the condition of the internal organs, excited the exertion of much sagacity, and became a frequent cause of error.

"He who is in the habit of seeing patients, who knows from experience the indescribable variety and the inconstancy of morbid symptoms, can alone appreciate the time, labour, and patience requisite for the deduction of certain general propositions from the observation of these phenomena; for the tracing, in a word, these semeiotic rules which the ancient medicine has transmitted to us, and some of which yet retain all their value. If more perfect and more numerous means of investigation now enable us to extend our observation farther, we must not the less admire the perspicacity of the ancients, who, in many cases, were enabled to foresee the future events of diseases with as much certainty as ourselves."—P. 149.

Nosography was extremely defective at this remote epoch, for although the division of diseases into sporadic, epidemic and endemic, met with in several parts of the Hippocratic writings, is well founded and of great utility, yet the distinction between acute and chronic diseases is frequently confounded or not observed. Few of the latter, indeed, are described, and some not even named—regarded, as they were, as inconveniences to be endured rather than as morbid affections susceptible of cure. Even of the acute diseases the descriptions are usually too defective to allow of their specific identification. In *Therapeutics*, the reputed axiom, *contraria contrariis curantur*, which was afterwards so frequently attempted to be elevated into a fundamental principle upon which the medical art was to be based, and has of late been so injudiciously dwelt upon as a rallying cry against homœopathy, obtained a general vogue; not but that some even of the Hippocratic writers already furnished arguments for contesting its soundness, as we shall hereafter see. The works of the Hippocratic collection treating of *Surgery*, which have descended to us, are manifestly imperfect, several subjects being entirely omitted and others only enumerated. Some of these which we possess, as the Treatises upon the Surgeon's Officinum, upon Fractures, and upon the Articulations, are

pronounced by M. Malgaigne as unsurpassed by any writings anterior to
the 19th century.   Several treatises of the Collection relate to *Obstetrics*,
and the one on Superfœtation furnishes an excellent account of the art of
the accoucheur at this period.   Midwives would seem to have been the
persons habitually employed, male practitioners only being called in upon
emergencies.
    As a *clinical instructor*, Hippocrates eminently possessed that moral frame
of mind which M. Bouillaud justly insists should be the portion of him who
desires to impart the knowledge he has acquired to others.   Animated
with the sole desire of benefiting his fellow-men, he cheerfully imparts all
he knows, and candidly confesses the faults and errors he may have com-
mitted.   The first and third books of the *Epidemics* present the earliest
specimens of clinical collections, and have formed an admirable model for
future investigators of medical constitutions.   They contain the histories
of forty-two cases; but, unfortunately, the regimen and treatment adapted
for these are not specified.   The other five books of the Epidemics,
not attributable to Hippocrates, contain a miscellaneous collection of
cases, and observations on every variety of disease, in some of which,
however, the treatment employed is detailed.
    Upon the celebrated " *Aphorisms*," M. Renouard offers the following
criticism.

    " No medical work of antiquity has enjoyed so colossal a reputation as this.
Physicians and philosophers have possessed a veneration for it equal to that en-
tertained by the Pythagoreans for the golden verses.   Long were the Aphorisms
regarded as the capital of the scientific edifice of medicine, as the sublimest effort
of medical genius.   Only a few years since, the Faculty of Paris required that
candidates should insert a certain number of them in their theses, and probably
nothing short of political revolution in France would have been able to discard this
old remnant of superannuated worship.
    " For some of the propositions which express general truths of recognised utility
or delicate and profound appreciations, how many are there which only represent
exceptional truths, vulgar reflections, or even errors and contradictions !   In a
practical point of view, the Aphorisms seem to me almost an absolute nullity, since,
maintaining no connexion with each other, they make only a temporary impression
upon the mind of the reader, and are quickly effaced from the memory.   Besides,
admitting that he had them at his fingers' ends, the practitioner would be little
aided by them in his treatment of disease.   This study, then, can offer no solid ad-
vantage to the student, and is fitting only for the practitioner whose experience
has ripened his judgment ; for he alone can distinguish the true from the false, the
good from the bad, in these general maxims.   For him alone they form the summa-
ries of a crowd of different and scattered observations."—P. 175.

    The Hippocratic Theories and Systems—M. Renouard examines these
at length, but we have only space for some notice of their leading points.
That of *Coction* and *Critical Days* has maintained its ground, with certain
modifications, even to our own times.   Disease was regarded as a series
of phenomena consequent on the efforts made by the vital principle
while operating the coction of the morbigenous matters.   These matters
could only be expelled the economy after they had attained by such coc-
tion a fitting maturity, that is, after their elements separated and mixed
with the natural humours of the system, were re-united into an excremen-
titious material or humour.   The approaching maturity was manifested by

a certain aggravation of the symptoms constituting the critical signs
which the physician must be able to discern and respect. The coction
operated, the morbid matter has to be evacuated by one of the emunctories,
and Nature may herself be equal to such critical discharge, or exhausted
by her prior efforts, she may require the intelligent aid of the practitioner,
who must direct the matters by appropriate medicaments to such emunc-
tory towards which they naturally tend. If coction be not effected, or be
imperfectly accomplished, the vital principle may be overcome by the mor-
bid elements and the patient succumb, or new efforts at coction are set up.
The period of days required for the elaboration was termed *critical*. Four
days were regarded as the most perfect period, then three, while the seven
days attained by adding the ten, has always enjoyed much consideration.
A complete scale of such days was indeed formed by adding the numbers
three or four to successive periods. To this progression, evidently derived
from the Pythagorean doctrine of numbers, Nature, however, frequently
refused to subject herself, so that the mode of computation had more than
once to be changed, and gave rise to much difference of opinion among
the ancients. Notwithstanding these discrepancies, the doctrine of ex-
pulsion of morbific matter on critical days, has descended to our times ;
and no one who has attentively studied the histories of the periodical
febrile and eruptive diseases will probably be disposed to deny that it pos-
sesses some foundation in truth. It is to be remembered that the obser-
vations of the Hippocratic writers chiefly related to febrile epidemics ; and
their error has probably consisted in extending to, and generalizing for all
diseases what legitimately can only be applied to a few. Conjoined with
this doctrine of coction and crises (and together constituting the original
form of *Dogmatism*) was the theory of the *four elements* or elementary
qualities, heat, cold, dryness, moisture, and the four *cardinal humours*, the
blood, bile, atrabile, and phlegm. When Hippocrates wrote, the natural
philosophers had just developed their doctrines of the homogeneity of
matter, and the production of its diversity of appearance by the various
combinations of its four elementary modes of existence, fire, air, earth,
and water ; and upon this doctrine he doubtless founded his view of the
condition of the animal economy. Speaking of the humours, in his Na-
ture of Man—he says :

" The body of man contains blood, phlegm, and two sorts of bile, yellow and
black. Such is its nature, and through these is it well or ill. It is in health when
each of these exists in its just proportion of quantity and strength, but especially
when they are well commingled. It is ill when any one of them is in excess or
deficiency, or is separated in an unmixed state ; for when so separated, not only
must the part in which it is defective suffer, but likewise that upon which it is cast,
becoming overloaded, will suffer pain and irritation."—P. 193.

He states that phlegm, being of a cold nature, is most increased in
Winter, blood in Spring, bile in Summer and atrabile in Winter.

" Whatever opinion we may form of this system in possession of our actual
knowledge, we are compelled to admit that, united to the theory of coction and
crises, it offered a plausible interpretation of the physiological phenomena which
most attracted the attention of observers at that period. In fact, these phenomena,
whatever they may be, can only be produced by an action compounded of vital and
of physico-chemical forces, which act simultaneously on the animal economy. Now,

the theory of coction expounds the laws according to which the vital principle is supposed to exercise its activity, and that of the elements and humours exhibited, the influence of inorganic forces, and the laws according to which such influence is exerted upon organic bodies. These two theories together constituted the *Ancient Dogmatism;* the original doctrine of the School of Cos, and of which Hippocrates is regarded as the principal author. In this doctrine the humours play the part of physiological or secondary elements—agents endowed with different and even contrary properties, placed at the disposition of the vital principle, which alone impresses upon them a good or bad direction. But these agents may sometimes contract deleterious properties, by reason of the action of external forces not submitted to the vital principle.   *   *   *   *   *   *   *

" In spite of its errors and imperfections, the doctrine of Dogmatism is the most ingenious and complete of all those of antiquity. It better responded than any other to the necessities and tendencies of ancient science, and was therefore received with admiration and adopted, not only by the generality of physicians, but also by the greatest philosophers."—P. 197.

M. Renouard protests against two opposite opinions that have been entertained respecting Hippocrates, it being deemed by some that it was his glory to have separated medicine from philosophy, and by others, that this consisted in the intimate union of these, which he effected.

" It is certain that others philosophized before Hippocrates, and equally so that Hippocrates philosophized like others, and that he partook of the prejudices of his age in many respects. But in other respects also his philosophy is distinguishable from that of his cotemporaries by its greater wisdom and depth. He incessantly reminds philosophers and physicians of the maxim, too often neglected by them and sometimes by himself, *that we cannot well inform ourselves of the nature of man without the aid of medical observation, and that we ought to affirm nothing concerning this nature but after having acquired a certainty of it by the evidence of the senses*—a maxim diametrically opposed to the dogmas of Pythagoras, and one that encloses the germ of an entire philosophy, which Plato mistook, and which Aristotle only caught a glimpse of."—P. 198.

Upon this subject M. Malgaigne observes:—

" When Hippocrates appeared, Socrates had proclaimed a rational method. Philosophy had bestirred itself and found a leader, and Medicine had only to follow the impulse. The characteristic of the Socratic philosophy is the rejection of mere speculation, and the admission only of ascertained facts and positive premises as the basis of all science and reasoning. Therefore he set little store on those researches which tend to no useful and practical end; in fact, above all, Socrates attached himself to three things—*reality, morality,* and *utility.* Xenophon reports to us a fragment of a conversation he had with his master upon medicine; and these few words so distinctly contrast with preceding methods, and so well accord with the Hippocratic manner, that we may here discern the germ of the most brilliant works of the latter.   *   *   *   *   *   *
You will observe the same method in the masterpieces attributed by general consent to Hippocrates. Every where the same love of the real, the same search for the useful, and the deep sentiment of morality which the Hippocratic Oath so admirably expresses. Occasionally, also, we must admit there is some abuse of dialectics, and more than one writer has already signalized, in the discussions into which Hippocrates sometimes enters, the Socratic irony. There is truly the same force in the disciple as in the master, but there is also the same weakness : and indeed, to recapitulate my entire opinion, Hippocrates was the Socrates of Medicine. Unfortunately both the one and the other had too far anticipated their age, and their school was not long in becoming corrupted. Socrates, in his old age, naturally was astonished at the language which Plato, the most illus-

trious of his disciples, attributed to him; and the pale successors of Hippocrates almost immediately quitted the path he had traced out to follow in the train of that philosopher."—*Bulletin*, t. xii., p. 160.

Among the followers of the Hippocratic or ancient (so called probably from its comprising the dogmas most anciently professed in medicine) dogmatism, the celebrated philosophers, Plato and Aristotle, were those who most influenced its progress by the ingenuity or profundity of their speculations. Plato did infinite mischief to the cause of true progress by diverting attention from simple observation, which he despised, to speculations upon the final causes of phenomena. The imagination usurped the province of the senses, and the most visionary speculations were substituted for true scientific procedures.

Aristotle was the most assiduous and constant of the crowds of scholars who resorted to Athens to learn philosophy from the lips of Plato; but, becoming engaged afterwards in researches which have justly stamped him as one of the greatest of naturalists, he soon discovered the fallacy of the *à priori* reasoning then in vogue, and laid down the famous axiom, destined to such ample development, many centuries afterwards, at the hands of our own countrymen, Bacon and Locke, that all ideas are derived from the senses, "*nihil est in intellectu quod non prius, fuerit in sensu.*" M. Renouard exhibits at considerable length the reasons why this great man, who thus conceived the idea of a true philosophy, was prevented deriving the practical consequences which should emanate from the discovery of so valuable a principle. The beneficial tendency of the above-named axiom was counteracted by the operation of another, which declared that "the first ideas we derive from our sensations are *general* ones." After contrasting this with the theory of Locke, M. Renouard observes—

"These two quotations, the one from the writings of Aristotle, the other from those of Locke, offer the curious spectacle of two metaphysicians, setting out from the same principle, that all ideas are derived from the senses, and immediately after separating into widely divergent paths; the one affirming that the first ideas derived by our mind through the interposition of the senses are *general* ones; the other that they are always *individual* ones. But it is easily seen that, in the examples furnished by Aristotle, he confounds obscure, vague, and indeterminate ideas with general ideas, a grave error scarcely conceivable on the part of such a logician.   *   *   *   *   *   *   *   From the instant this philosopher believes he has indisputably proved that general ideas are those first formed by the human understanding, he deduces the conclusion that we should commence the study of every science with certain generalities or axioms, which on this account he terms principles, or elements, and thence pass on to the particular or individual ideas or phenomena. So that, after having assigned to our ideas an origin quite opposed to that assigned by Plato, he counsels the very same didactic method or mode of acquisition as that philosopher."—P. 249.

M. Renouard pursues at considerable length his consideration of the fanciful ideas on physiology entertained by the strong mind of the Stagyrite, seduced from the true path of observation he had himself indicated and then lost sight of. These are invested with considerable importance in consequence of their partial adoption by Galen, through whose influence they have retained an undue importance until quite modern times. We have, however, not space for the exposition nor for the well-merited

eulogia which our author passes upon the vast acquisitions of the great peripatetic philosopher in natural history—acquisitions which were done ample justice to a few years since by Professor Owen in his lectures at the College of Surgeons, with the praiseworthy enthusiasm of a kindred spirit, and a felicity of expression and illustration none who heard can have forgotten.

The following are M. Renouard's concluding observations upon the Historical Period, the consideration of which we have now completed.

"Hippocrates forms the transition between the preceding period and the present, belonging equally to mythology and history; for if some circumstances of his life and some of his works are authentic, most of them are doubtful or controverted. His doctrines have been received by cotemporaries and posterity with a veneration which approaches a worship, less perhaps on account of their real merit than the mystery which surrounded their birth. Since his time no man has obtained, as a physician, so great, so constant, and so universal a homage. Soon, indeed, anarchy was introduced into the bosom of the school he had rendered so celebrated. Multitudes of methods and theories were there surreptitiously propagated, under cover of his name and authority, so that at last it became impossible to 'discover, amid so many writings and facts placed to his account, what really belonged to him. After some years of confusion, we shall find physicians divided into three principal sects, which, struggling against each other with varying success, eventually become absorbed by the most powerful."—P. 260.

4. *The Anatomical Period.*

[From the Foundation of the Alexandrian Library, B. C. 320, to the Death of Galen, A. D. 200.]

The School of Alexandria.—Among the lieutenants who dismembered the vast empire left at their mercy by the death of Alexander, two only, Eumenes, governor of Pergamus, and Ptolemy-Lagus, viceroy of Egypt, turned their attention to the civilizing effects of literature. The foundation of the libraries at Pergamus and Alexandria, especially the latter, were indeed noble undertakings, whose vastness can only be conceived by those who are aware of the scarcity and dearness of manuscripts at that period of the world's history. M. Renouard has well compared its influence upon ancient civilization to that exercised by the invention of printing upon that of modern times. A city so munificently furnished with the appliances of literature, naturally became the resort of the learned, and the Ptolemies held out every possible inducement to them to take up their residence in so congenial a locality. No science received greater encouragement at their hands than that of Medicine, and the *School of Alexandria* quickly surpassed all others in celebrity; and, in the time of Galen, it sufficed to have studied there, or even to have only resided in the city, to obtain a reputation as a physician. Among the principal causes of the prosperity of the school may be named the encouragement given to the *dissection of the human body*, the Ptolemies themselves even wielding the scalpel. They likewise prided themselves upon forming valuable collections of animals and rare plants.

Unfortunately these desirable conditions for improvement were not to be of long continuance. Dissections were discontinued about the end of

the second century, and natural researches became displaced by subtle and objectless discussions. The Roman Conquest produced an utter pro- hibition of dissection, for this people, stained with the bloodiest crimes, deemed the contact of a dead body an abominable profanation. The works of the professors of the Alexandrian School during its flourishing epoch are all lost, they being only known to us by tradition and by frag- ments preserved by writers of a later period, as Galen, Aræteus, Celsus, Pliny, and others. From these sources alone can we derive any idea of the state of medical science at the end of the second century of our æra —Galen, indeed, being our chief authority.

Several writings upon *Anatomy and Physiology* from the pen of Galen have descended to us, and manifest the vast progress the dissections per- mitted at Alexandria would in some measure entitle us to expect. To follow M. Renouard's detailed analysis is impossible, and we must content ourselves with his concluding remark.

" This sketch of the anatomy and physiology of Galen furnishes us with some idea of the immense progress that had been made during the anatomical period; and, when we consider that the greater portion belongs to the first two centuries of the foundation of the School of Alexandria, and is due chiefly to the labours of Herophilus and Erasistratus, we feel astonished at so rapid a development, as well as at the fortunate direction these two great physicians had impressed upon anatomico-physiological studies. Not only did they perform frequent dissections of the human body, but also had recourse to vivisections of animals. It is re- corded, indeed, of Herophilus, that he did not hesitate to operate upon living criminals furnished him in the interest of science : but it is to be observed, that the fact is related by no contemporary, and was only known some centuries later as a popular tradition : so that it has been doubted by most historians, who ob- serve that the same accusation has been falsely accredited, at different epochs, in reference to other celebrated anatomists.

" However, as we have already stated, the zeal for dissecting speedily cooled, and Galen only enumerates some five or six persons who occupied themselves with anatomy since the first Alexandrian anatomists, during the space of near 400 years which had intervened between that time and his own. None of these left a reputation anywise approaching that of Herophilus and Erasistratus ; and Galen alone could sustain a comparison with them, by reason of his great number of experiments and anatomico-physiological discoveries. But in vain did he en- deavour, by example and exhortation, to bring back his contemporaries to the study of anatomy. He was unable to overcome their indifference. After his time, the employment of dissection seems to have become lost, whether from an increase of superstitious prejudices opposing it, or from the ignorant apathy of medical practitioners."—P. 283.

Although *Hygiene* did not partake of the rapid progress which Antomy and Physiology achieved, it did not either remain stationary, and Celsus, in his first book, presents us with the precepts which were most accredited in his time ; and, if he adds but little to the materials derived from the Hippocratic Collection, at least he presents these with more order and concision. Galen also wrote much on hygiene, and insists upon the precepts to be observed in infancy and old age, and especially the former, to a much greater extent than his predecessors. He also lays great stress upon the influence of habit, and was the first who insisted that the due regulation of the passions should form a part of hygienic observances. Wishing, however, that the laws of hygiene should be deduced rather

from preliminary determinations of the nature of man, the principles of which he is composed, &c., than from simple observation, the philosophical physicians fell into all kinds of ideal speculations and recommendations; and Galen has quite equalled his predecessors in the fastidious digressions he indulges in, so that his works on hygiene might be well reduced by four-fifths without any loss to their practical value.

Pathology.—In this period, under the influence of the Aristotle philosophy, writers distinguished the different branches of medical science with much more order and precision than heretofore; and, indeed, the love of method was carried to far too great an excess, so that Galen and others, by indulging in subtle and ill-defined distinctions, actually lost the greatest benefit—clearness—which arrangement bestows. The treatment of disease was now divided into hygienic, pharmaceutic, and chirurgical; but Leclerc and Sprengel are certainly in error in supposing that each of these three departments of medical science were in the hands of as many classes of practitioners. As Peyrilhe observes, the distinction was a scholastic, not a civil one, for otherwise we ought to discern among the Romans, evidence of the existence of these three classes, while the separate existence of even one of them, the chirurgiens, properly so called, is not even established by minute investigation.

Semeiology.—We have already seen that the Hippocratic School studied symptoms not in reference to the disorder of any particular organ, but as an expression of the resistance made by the entire economy to the morbigenous principle. The study of such signs was carried to great perfection, as several of the works of that school testify. Moreover, towards the end of the former period, Praxagoras first drew attention to the connexion between the state of the *pulse* and that of the economy—a subject to which little or no attention was paid in the Hippocratic works. In the present period, however, it excited much investigation, it being believed that variations in this indicated every variety of disease. Thus there was the pleuritic pulse, the suppurative, the phthisical, the hepatic, the splenic pulse, &c. &c. Galen's work upon the subject is divided into four sections, each comprising four books, in the first book of the first section no less than sixty varieties of the pulse being indicated! The inspection of the *urine*, next to the consideration of the pulse, most occupied the attention of the ancients, but the principal writings upon this subject were posterior to the time of Galen. Thus, the Hippocratists grouped together the most obvious symptoms of diseases and their events, and deduced thence their prognosis and diagnosis. The Anatomical School examined each symptom or order of symptoms apart, seeking the causes and signification of the minutest varieties they offered. "The synthetic mode of the former possessed grandeur and eclat, but was superficial and frequently at fault; while the analytical method of the latter, in affecting exactness and depth, was frequently trivial and subtle, losing itself amidst infinite littleness.

The *Nosography* of the Hippocratic School was exceedingly imperfect in the designation of the specific differences in disease, owing to the absence of precise notions on anatomy and physiology, and its regarding symptoms

rather as the expression of a general disorder than of particular organic lesions. During the Anatomical Period, however, Nosography attained a remarkable perfection, as may be seen by a perusal of the writings of Cælius Aurelianus and Aretæus, who both lived, according to the most probable opinion, in the second century of our æra. From the pen of each of these observers, we have a nearly complete treatise upon all the diseases observed in their times, forming precious monuments of ancient medicine. That of Aretæus, written in Greek, in an elegant and picturesque style, has procured for him the title of the most skilful depicter of disease among the ancients, while the work of Cælius, being written in bad Latin and disfigured by barbarous words of difficult interpretation, has prevented its contents obtaining the diffusion critics are unanimous in declaring they deserve. Galen also wrote at length upon all diseases, but his observations are so dispersed over different treatises, and overwhelmed by theoretical digressions, as to require a laborious examination and collation to be of much general service. The writers of this period minutely describe a variety of *chronic* affections, which those of the former wholly passed over; while, as regards acute disease, the Anatomical School also did much to perfect their diagnosis. The progress in this respect is exhibited by M. Renouard in transcribing the description of peripneumonia by Aretæus, and contrasting it with that of the Hippocratic Collection.

In *Therapeutics*, no new axiom was propounded, the Hippocratic doctrine of treating disease by its contraries still prevailing. For this reason great pains were taken to accurately determine its determining causes or essential phenomena, in order that remedies of the most opposite character might be applied. The Empirical sect, as we shall afterwards see, protested against this mode of procedure, declaring that the essential natures of diseases and of the primary action of curative agents were impenetrable, and reasoning founded upon them chimerical. The practical acquisitions in therapeutics during this period were, however, considerable. Aristotle had been the first to cultivate the science of Natural History, and Theophrastus, who inherited his manuscripts and museum, effected for botany what his master had accomplished for zoology. He described the physical qualities and medicinal properties of more than 500 species of plants. At Alexandria, large collections were also placed at the disposal of the learned, so that the *materia medica* soon became much enriched. Indeed, towards the end of this period, compound and exotic remedies had become so common as to lead to the most ridiculous polypharmacy. Then were invented the famous antidotes, the Mithridaciæ and Theriacæ, composed of from forty to sixty different ingredients, each being supposed to be gifted with its particular virtue. Galen, Pliny, and Dioscorides, each attempted a classification of these numerous pharmaceutical substances, that of the last being most esteemed for its order, exactitude, and clearness. "With an augmented *materia medica* and an improved diagnosis of disease, we may believe that the therapeutics of this period were more rational and efficacious than those of the former; and, in point of fact, the writings of Aretæus show us that, during the four centuries which separate the last Hippocratists from the epoch in which he lived, greater progress in respect to the treatment of some diseases had taken place than has been accomplished during the subsequent sixteen hundred years."

As might be expected, the dissections pursued by the Anatomical School contributed much to the advance of *Surgery*, and we accordingly find the chirurgical portions of the writings of Galen and Celsus incomparably superior to those of the Hippocratic school. *Celsus* seems to have lived towards the termination of the first century of the Christian æra, that is, a little prior to Galen ; and he treats various subjects not alluded to in the Hippocratic Collection, among which may be mentioned hernias, stone in the bladder, cataract, wounds of the abdomen, &c. The writings of the whole of the surgeons of the Alexandrian school are lost ; and his work is therefore the earliest in which we find operative procedures described with clearness, method, and precision. M. Renouard places many passages from this writer in juxtaposition with those treating upon the same topics from the Hippocratic collection, and to his great advantage.

The Anatomical Period has furnished us with no *clinical histories* worthy of comparison with the Epidemics of Hippocrates.

" Galen, who alone among the physicians of the period can sustain any comparison with that great man, has left us no collection of the sort. He only now and then relates the history of a patient with the evident object of exhibiting the superiority of his diagnosis and the excellence of his theory. We do not observe in his recitals, as in those of the painter of the epidemical constitutions, the plain and impartial historian, relating his facts without commentary ; but we constantly meet with the prolix and subtle dialectician, who lets no phenomenon escape him without interpreting and lengthily discussing it. Many writers of the period, and Galen among others, commented upon the Hippocratic *Aphorisms;* but no one essayed the delivery of new ones. Most were, doubtless, restrained by the respect paid to those ancient works whose reputation was colossal ; others, perhaps, appreciated the abuse this species of literature—more pretentious than solid as respects medicine—is liable to. However this may be, we reproach not the writers of this period with having abandoned it."—P. 316.

Theories and Systems.

In proportion as the acquisitions in anatomy and physiology were augmented, the diagnosis of disease perfected, and therapeutical agencies increased, the necessity of classifying the masses of facts in some methodical order that they might be the more easily retained, and connecting them together by the most probable theory or explanation, was felt by many observers, and attempted by several of them. Neglecting all but capital differences, however, the most important theories which have descended to us are four in number : Dogmatism, Empiricism, Methodism, and Eclectism.

1. *On Dogmatism.*—The dogmatism taught at the School of Cos, supported by the approbation of Plato and Aristotle, had exerted its dominion over the medical world for several centuries when the School of Alexandria was founded, and the earliest professors of that school made little changes in it. The later ones made several modifications in these doctrines, but of all the sectarians who professed them the most fruitful, skilful, and powerful, was

Galen.

Born at Pergamus, a town celebrated for its Æsculapian temple, its school of medicine, and its library, he received an excellent education, and profited

by it with extraordinary assiduity.   Already enabled to dispute with the
most erudite in grammar, history, philosophy, and mathematics, he deter-
mined upon applying himself to the study of medicine.   To this end, he
travelled to many places, and resided some time at Alexandria.   On his
return, his great renown called him to Rome, where his brilliant language,
profound erudition, and skilful practice conciliated to him the highest
esteem ; but where, too, his rapid success, his boasting, his undisguised
disdain for his colleagues, also raised against him a powerful band of
enemies who were the cause of his quitting the city—to return again,
however, at the invitation of Marcus Aurelius ; and he is supposed to have
died there about the year 201.   He declares himself a partisan of no sect,
and ridicules those who acknowledge any of the then leaders of opinion.
In fact, however, he explains, comments on, and amplifies the doctrines
of Hippocrates, and refutes the objections of their adversaries.   He thus
states his own conception of his mission.

" No one before me has furnished the true method of treating disease.   Hip-
pocrates, I allow, had already pointed out the way ; but, as he was the first to
enter upon it, he could not proceed along it so far as was to be desired.   The
order he adopts is vicious.   He omits certain important indications, and does not
make all the necessary distinctions.   After the manner of the ancients he is fre-
quently obscure, for the sake of being concise.   He says very little concerning
complicated diseases.   In a word, he has sketched out what another must com-
plete ; he has opened the route ; it is for another to enlarge it, and render it easy of
access."—*Methodus Medendi*, lib. ix.

Dr. Renouard gives an elaborate analysis of Galen's views in physics
and physiology ; but we think little or no advantage can accrue from our
presenting an abstract of these to our readers.   His elaboration of the
doctrines of Hippocrates and Aristotle is ingenious, but subtle and minutely
tedious ; and, as a specimen, we may transcribe his opinions on the soul.
Like Aristotle and Plato, he believed this to be composed of three portions,
the vegetative, residing in the liver ; the irascible, which has its seat in
the heart ; and the reasonable, which is placed in the brain.   As instru-
ments or servants of the soul, there are spirits generated in the liver, heart,
and brain, besides which, each portion of the soul has certain secondary
faculties at its disposal.   Thus, the vegetable soul presides over the gene-
rative, augmentative, and nutritive faculties.   The secondary faculties,
again, are aided in their turn by a third order of faculties—the nutritive,
whose principal seat is the stomach, being assisted by the attractive, re-
tentive, assimilatory, and expulsive faculties.   By the agency of such an
hierarchy of souls, spirits, and faculties, Galen and his followers easily
explained the various functions of the body.

In his *pathology* there is a similar assemblage of imaginary or abstract
entities upon which acts and attributes are bestowed as if their existence
were real.   Some of the diseases are placed in the solids, others in the
fluids, and others in the spirits.   The action of medicinal substances is
primary or consecutive.   The former depending upon the predominant
quality of the substance employed.   One substance heats, because the ele-
ment of fire predominates in it ; and another cools for the opposite reason.
The combinations, degrees, and periods of production of these various
effects are set forth in the most minute and elaborate manner.   The con-

secutive action of medicines is manifested after, and in consequence of the primary one. It varies much, some medicines opening the pores, others closing them ; some hardening, some softening, the tissues, &c. &c. Some secondary actions influence only certain organs or functions, and become diuretics, emmenagogues, &c.

"As to the principles which should guide the practitioner in the choice of therapeutical means applicable to each disease, the physician of Pergamus entirely adopts the axiom proclaimed by the School of Cos, which declares that diseases are to be cured by their contraries. Consequently, all his researches all his pathological dissertations, tend to penetrate the essence of diseases, to render this apparent disengaged from all accidental accessories, in order that a treatment whose action is diametrically opposite might be applied. He makes this essence sometimes consist in an excess of one or more of the elementary qualities of the affected parts, sometimes in the reaction of the vital principle, the primary and efficient cause of all the symptoms. In that his doctrine is confounded with that of the dogmatists, and is nothing more than dogmatism itself, amplified, attenuated, and pushed to its remotest consequences. Sometimes, however; he takes into consideration the constriction or relaxation of the pores, which seems to resemble that of the Methodists. Lastly, in many passages, he professes a great consideration for the assemblages of symptoms and pure experience which the empirics place above every thing. Notwithstanding these slight and rare occasions, Galen has been, and ought to be, regarded as one of the columns of the Hippocratic dogmatism.

"Although he has written a great number of treatises on pathology and therapeutics, it would be difficult, if not impossible, to direct the treatment of any one malady by such a guide, so vicious is the order he has adopted, and so defective is his manner of treating his subject. I except from this proscription the four last books of his *De Locis Affectis*, in which he gives most excellent advice for the detection of the anatomical seat of diseases, especially mental and nervous ones. This treatise, joined to his writings on anatomy and physiology, constitute for him titles of imperishable glory, and justify or excuse the admiration, of which he was the object during more than twelve centuries.

"In respect to history, this encyclopædical writer has also rendered immense services ; for he has preserved for us the opinions of a great number of physicians whose works have perished, and especially of the chiefs of the sects. Thanks to him we are enabled to raise a corner of the veil which conceals the great struggles of the Dogmatists, Empirics, and Methodists. If the number of works which he has produced do not form a treasure easy of exploration by the practitioner, they are an arsenal whence the erudite and dialectician may draw arguments upon every description of medical question. We have approached a period when physicians pride themselves more by shining in the subtleties of dialectics and the display of a vain erudition, than in their practical wisdom: so that the very faults of this author secured the sceptre of medicine in his hand; for, as regards erudition, subtlety of reasoning, universality of acquisitions, he only yields the palm to Aristotle, whom again he surpassed by the elegance, purity, and strength of his style. It is said that he wrote 500 volumes on medicine, and about half that number on other subjects. But it is to be observed that, among these volumes, some were only short manuscripts, consisting of a few pages."—P. 335.

We are desirous of presenting our readers with a long, but interesting, extract from M. Malgaigne's Essay bearing upon this part of our subject. After adverting to Galen's proficiency in anatomy, his eager pursuit of experiments upon, and dissections of, animals, and his intimate acquaintance with the prevalent medical doctrines, M. Malgaigne observes—

"And yet no sooner does he commence his journey than he seems to take a pleasure in losing himself. In anatomy itself, that somewhat gross anatomy of the ancients, which only requires the eyes to see it, Galen sometimes turns away his eyes. Pre-occupied with final causes, he is so long searching for what ought to be, that he mistakes what is. If he professes an exalted admiration for Hippocrates, it is especially in reference to the works most unjustly attributed to that great master. Casting down without pity every obstacle, he elevates amidst their ruins the fundamental theory of the four humours constituting the human body, the blood, phlegm, bile, and atrabile; and, accordingly, as these humours are vitiated in quantity, quality, or mode of combination, you have the whole of pathology developed. To speak only of what relates to surgery, pure blood forms phlegmon, bile erysipelas, phlegm œdema, atrabile cancer, &c. Let the quality be vitiated, and from heated blood carbuncle will be produced; from a too-thick bile, phlegm, or atrabile, ulcer, scirrhus, or lepra is generated. Combine the humours in different degrees, the bile and the blood for example, and, according as one or other of these predominates, you have an inflammatory erysipelas, or an erysipelatous inflammation. Add to this, that the four principal qualities of the humours, cold, heat, dry, and humid, are found also in medicaments, so that fortunately we can combat the one by the other; and the theory is complete, intimately connecting pathology and therapeutics.

"How shall we explain that Galen, the anatomist, the experimenter, the observer and practitioner, has thus been led to adopt, strengthen, and cause the prevalence of a system so foreign to all positive observation? The explanation is found in the philosophical medium in which he lived. The philosophy of Plato, so long combatted by rival sects, gradually regained its ascendancy, and borrowed from Christianity a new power while lending it a useful support. Now, although Galen denies that he belongs exclusively to any school, it is to that of Plato he gives the preference. At an early period he had been instructed in all the subtleties of dialectics; and, like Plato, he assigned to this the first rank in the sciences, and would render it the earliest study of the physician. It is dialectics, he says, which teaches us the nature of bodies, what is formed of primary elements, and what of secondary ones. In searching for the elements the senses are powerless, and useless, and we must interrogate the nature of things. It was then by a contemplation of the nature of things that he proceeded to the discovery of principles; these discovered, dialectics should suffice also to determine their applications; and we find in one of his books (*De Optimâ Sectâ*) this profession of philosophical facts, that no precept can be legitimate in medicine any more than in other sciences, but upon the triple condition of being true, useful, and in accordance with principles laid down. Strange principles these, which it was not sufficient that they should be true and useful! *   *   *
*   *   *   *   *   *   The first essays of dogmatism then were produced under the direct influence of the philosophy of Plato, which also presided at its definitive establishment; and just as the medicine and surgery of Hippocrates sprang from the Socratic school, the medicine and surgery of Galen may be in good right termed Platonic. But the features of the one and the other were not alike. Hippocrates witnessed, while yet living, a revolt among his disciples: Galen made every thing yield to the weight of his authority. Is this to say that error is more powerful than truth, and more easily seduces the thoughtless multitude? This is doubtless one of the saddest lessons taught by history. Nevertheless we must not judge Galen and his age with too much rigour. On the one hand, a true philosophy of the sciences as yet did not exist, and there was only, so to say, a choice of errors. On the other hand, minds were fatigued by that long anarchy which, during six ages, had buffetted them about; and they only sought a doctrine brilliant enough to rally them, and a master strong enough to rule over them. Galen presented himself opportunely. Gifted with a facility of conception, and an extraordinary love of labour, sharpened by hard studies in medicine and philosophy, practised in all the subtleties of dialectics, he

overwhelmed his adversaries by the extent of his acquirements, the number of his productions, the force of his logic, the bitterness of his sarcasms, and lastly, if we must admit it, the immensity of his pride. Add to this, that Hippocrates, resting upon incomplete and as yet uncertain observations, was menaced with an approaching and formidable struggle with the philosophy of pure reasoning, aided by all the eloquence of Plato. To Galen no peril of this sort presented itself. So far from this, the dogma of authority which he contributed to strengthen, and which was about to reign supreme in all the schools, assured to him, during a long succession of ages, a superiority without contest, and a domination without a rival."—*Bulletin*, p. 166.

2. *On Empiricism.*—As rival schools of philosophy to those of Plato and Aristotle were raised from time to time by Epicurus, Pyrrho, and others; so also the dogmatists in medicine found opponents who endeavoured to construct the medical art upon totally different foundations. The *Empirics*, as they were called, rose rapidly into estimation; one of their number, Heraclides of Tarentum, receiving the applause of the leaders of opposite sects, Galen and Cœlius Aurelianus. Unfortunately, their works are all lost, so that all accounts we have of them are derived from the writings of their adversaries. They employed three sources of medical instruction, which they termed the basis or tripod of Empiricism. These were the autopsy or personal observation, history or the study of observation collected by others, and the epilogism or analogism, or the induction derivable from the two former sources.

A. *The Autopsy.*—The Empirics were so fully convinced of the truth of the axiom of Hippocrates, that experience is deceptive, that they instituted numerous precautions for guarding themselves as far as possible from sources of error; and laid down rules as minute to this end as any numerical enquirer of the present day would desire. Although they rejected all attempts at searching for the essential causes of disease, they did not believe all symptoms of equal importance, but measured them not by their pretended essence, but by sensible circumstances. They required, also, that the assemblage of symptoms should be considered together, and that, for due diagnosis, the condition of the entire economy, as far as possible, should be explored.

B. *History*, or the study of clinical relations contained in books is a valuable source of information, without which medicine must remain stationary. By its aid we participate in the experience of our predecessors, rectify our own observations, and fill up deficiencies in them. But, for books of this kind to be useful, we must be certain of their veracity, and among the characteristics of this are, the reputation of the author, similar accounts of the same fact delivered by observers of different times or places, and the agreement of the statements with our own observations.

C. *Epilogism or Analogism.*—If we have to treat a new or undescribed malady, neither of the above means of instruction can avail us, nor can they in the case of our having to treat a well-known affection while denied recourse to the indicated remedies. In these cases, analogy is to be

our guide. If the disease has not been already described or treated, search for the mode of managing that one which nearest resembles it. If you have to substitute untried remedies for those of approved efficacy, let them at least as nearly resemble the latter as possible.

The Empirics substituted for the definitions of disease by the Dogmatists, according to their essential nature or proximate cause, simple descriptions, or abridged enumerations of their sensible qualities. They are said to have neglected the study of anatomy and physiology; but this, at least as regards anatomy, is an accusation we have only from their enemies, and one in flagrant contradiction with the fundamental basis of their doctrine : but, in respect to the physiology of the epoch, consisting, for the most part, in vague and futile dissertations upon the principle of life, the elements of the body, the generative cause, &c., &c., their neglect is somewhat excusable. In their *therapeutics* the Empirics were quite opposed to the maxim of diseases being cured only by their contraries. Believing the essential causes of disease to be impenetrable, they would not allow that any relation between this and the action of remedies was discoverable. Careful experience was with them the only recognised guide. As a treatment which has proved successful against a disease will exert again its efficacy in the event of its being employed in the same pathological condition, the essential point was to attain, by accurate description, the power of distinguishing this.

Empiricism has been erroneously, by some, considered a mere effect of the Pyrrhonean or sceptical philosophy, from which it differs in many essential points. It is evidently nearly allied to the philosophy founded upon the operation of the senses, of which Aristotle laid the first foundation, soon to desert the edifice he had commenced. The Empirics adopted the basis laid down by the great Peripatetic, but instead of, like him, wandering about in search of generalities, mis-named principles, they were content to carefully collect and accurately describe particular facts, and to deduce practical rules from such observation. By never rising, however, to abstract generalities and universal axioms their work was left imperfect, and their final object not even indicated.

At first Empiricism rapidly gained ground. Galen enumerates the names of many authors who professed it, and, at the time he wrote, the term had not become an injurious epithet ; and he, who was never very measured in the terms he employed against his adversaries, and loaded the Methodists with those of contempt, speaks of the Empirics with much respect, and more than once admits being staggered by their reasoning, even while opposing it. The Methodist Aurelianus also speaks of them in honourable terms, and the Eclectic Celsus does so still more favourably.

" The circumstances amidst which the system was introduced were most favourable to its propagation. The medical theories, as we have seen, had fallen into confusion. All descriptions of principles, methods and opinions were questioned. The recent discoveries in anatomy, the introduction of a considerable quantity of new medicaments, whose properties were as yet undetermined, the always increasing fury of philosophical disputes—all had shaken the old dogmas without substituting any better in their place, or any thing which received general assent. In the middle of such conjunctures, a doctrine which promised to put an end to the perpetual variations of dogmatism, and to arrest the sterile incertitude of scepticism, by fixing itself solely on the evidence of facts, would be welcomed with enthusiasm, especially by those practitioners whom daily expe-

rience had convinced of the inutility of dialectics for the advancement of medicine.

"It was, however, not long before it was discovered that empiricism, though founded on simple observation, terminated neither differences of opinion nor uncertainties of practice; for if rationalism, which proceeds from generals to particulars, is subject to deception, sensitism, or the experimental method, which proceeds from particulars to generals, has also its gropings. Besides, the old Empirics, in stopping short at secondary generalities, without reaching first principles, or rather definite axioms, resembled workmen who ceased labouring in the midst of the erection of a edifice. Lastly, the greatest error on the part of Empirics, in the eyes of antiquity, was their not attaching themselves to any philosophical theory then known. Their doctrine might seduce practitioners by its apparent simplicity, but it could not satisfy speculative spirits. It possessed not, therefore, the conditions of life required by the learned world at that epoch. So was its fall complete. It remained cast down for ages, and its very name became synonymous with ignorance. Nevertheless, we shall see it rise again from this humiliation, and aspire, even boldly, under the title of the experimental method, to an universal domination over the sciences, when the works of Bacon, Locke and Condillac shall have somewhat simplified its characteristics."—P. 357.

3. *On Methodism.*—As in Empiricism each suite or combination of symptoms not hitherto described was deemed a new disease, and as, in the course of time, these species were constantly multiplying without any attempt at generalizing them being made, eventually the greatest confusion was produced; and a systematic mode of viewing science, presented by Asclepiades, of Bythinia, a distinguished professor of rhetoric at Rome, founded upon the philosophy of Epicurus, met with general favour. According to his views, the human body is formed of highly permeable tissues, perforated by invisible pores, through which pass and repass continually certain atoms of different shapes and volumes, incommutable, indivisible, and impalpable in their nature, being perceptible alone to the mind's eye. Health depended upon the exact symmetrical correspondence between the pores and the atomic molecules. However unsatisfactory his physiology, his therapeutics, from their simplicity, possessed a great attraction for his patients. His object was simply to enlarge the pores when too contracted, and *vice versa;* and his means of effecting it were chiefly of a hygienic character, such as various exercises, friction, &c., and the use of wine—to the exclusion of all remedies having a violent action. It is obvious that measures of this description could only prove useful in a limited class of affections, and accordingly Asclepiades' reputation was but ephemeral. His disciple, Themison, may be looked upon as the true founder of the Methodic sect. He divided acute and chronic diseases each into three genera, the constricted, fluxionary or relaxed, and the mixed—basing his distinctions not on the hypothesis of porosity, but on the sensible characters derivable from observation. Thus, *e. g.,* swelling, tension, induration, suppression of natural evacuations, were esteemed characters of the constricted genus. The classification of the species of disease under these genera, was, however, of a very arbitrary character, diseases possessed of few or no characters in common being grouped together; while different professors were at issue as to which genus certain maladies could be most appropriately referred. "Nevertheless, his essay at a pathological classification founded upon the obvious characters of diseases, and not on their

occult or imaginary qualities, was a great step." The Methodists had but two *therapeutical indications* to fulfil : to relax when there was constriction, to constringe when there was flux or relaxation ; and all their agencies were arrayed in one or other of these classes. Bleeding, emollient cataplasms, tepid laxative drinks, sudorifics, temperate air, sleep, moderate exercise, acted as relaxants. Darkness, cool air or drinks, red wine, vinegar, alum, &c., operated as astringents. They rejected all specific operation of medicines, such as purgative, diuretic, &c., excepting emetics, which however they did not give to evacuate bile or phlegm, but for the shock they imparted to the economy, opening and modifying the condition of the pores. The Methodists never troubled themselves with any researches for *causes*, whether occasional or proximate ; since, from the moment these have taken effect, it is the disease induced by them which is to be cured; and it is from it, its nature, characters, and progress, and not from anterior circumstances, which no longer exert any influence, that indications must be drawn. They attached also little importance to a knowledge of the precise seat of the disease or part affected, or to concomitant circumstances, as age, habits, general strength, season, &c., believing all such details superfluities which should not modify the treatment pursued. They discarded all the generalizations of the Dogmatists, and confined themselves as nearly as possible to an exact observation, forming morbid species of every different assemblages of symptoms. These multiplied at last so as to render their separate recognition a matter of difficulty ; and, in classing them into generals, the Methodists mistook the true object of such a proceeding. Instead of employing the generic distinctions as a means of more accurately determining the specific differences, they rejected the latter as useless, and confined their attention to the most general agreements. Thus, they would treat in the same manner mania, jaundice, amenorrhœa, because they belonged to the constrictive genus, &c. They paid no attention to the natural tendency of the vital forces, coction, or critical days ; and they studied anatomy and physiology even less than the Empirics. So great was their desire for simplicity, that all their patients were put upon a uniform system of regimen, in which the extent and duration of fasting were rigidly regulated.

So simple a method much facilitated the acquisition of a superficial knowledge of the medical art, and Thessalus boasted he could teach the whole science in six months. This doubtless contributed also to the rapid progress the sect at first made. It likewise satisfied the very prevalent love of generalization so characteristic of the epoch, and in some sort offered itself as a medium between the extremes of dogmatism and empiricism. With the former it adopted rationalistic truths, but deduced from sensible phenomena ; and with the latter it took observation for its guide, but unincumbered by a multitude of precepts. Galen was no dupe of the pretensions of the Methodists, but vigorously employed himself in unmasking the sophisms and in demonstrating the insufficiency of their theories and the dangers of their practice—bestowing on the professors themselves the epithets his satirical disposition suggested.

4. *On Eclectism.*—Each of the systems we have alluded to contain useful truths, which the reason and experience of all ages have confirmed,

disfigured as is each by some grave error or exaggeration. . Many physicians recognised this fact, and conceived a vague impression that the truth is not to be exclusively found in any of these systems ; but not possessing the aid of the improved philosophy we employ, it was impossible for them to particularize what was good and what was evil in each.   These practitioners, who called themselves *Eclectics* or *Episynthetics*, in order to show that they adopted no system exclusively, but selected what was best from each, not possessing any general rule whereon to base their judgments, decided each particular question according to their taste, fancy or reason. The habitual condition of an Eclectic was doubt, but not the doubt of the Pyrrhonist or Sceptic, which was as a principle absolute and universal, but one resulting from defective information on the point in question.

" While boasting that he chose that which each system offered of the best, he failed to indicate in what this last consists, and traced no rule for its recognition, but left this to the reason and experience of each individual ; that is to say, he proclaimed individualism, doubt and isolation.

" In the midst of this conflict of theories, *dogmatism*, supported by the highest philosophical and medical celebrities, developed and maintained by Galen, offered the most extensive and most probably explanation of the living economy.   It deserved to triumph then, as it did in fact, its very errors contributing to its strength; for they harmonized with the predominant philosophy."—P. 379.

II. The Age of Transition.

[Commencing with the Death of Galen, A. D. 201, and terminating with the Revival of Letters, about A. D. 1400.]

5. *The Greek Period.*

[From the Death of Galen, A. D. 201, to the Destruction of the Alexandrian Library, 640.]

The entire civilized world has now submitted to the domination of the Roman Empire.   No longer do the Schools of Greece resound with the discussions of her philosophers disputing upon the most arduous topics in morals, physics and metaphysics that can employ the mind and excite the imagination.   In each department of the intellectual domain, some great name has obtained supremacy, and commanded a passive obedience ; the true sense of his words, and not the discovery of truth or the establishment of principles, being the sole object of enquiry. .In morals, Plato, Epicurus or Zeno, and in physics and metaphysics, Aristotle, reign supreme ; and many centuries are yet to elapse before the authority of Galen in medicine is to meet with any rival.   We have not now to chronicle the struggles of sects and systems.   One sect and one system predominates, and the movement in medical science is slowly *retrograde*.   One remarkable circumstance arrests, however, our attention ; the sceptre of science is transferred from the hands of one people to those of another, and the language of Hippocrates and Galen is displaced by that of Avicenna and Albucasis.   The first period in this Transition Age presents us with the writings of four Greek physicians, who had all studied in the School of Alexandria, this still maintaining a reputation until the Arabic invasion. Although they have in a great measure compiled from the writings of Galen

and others, they have done good service to medical science, by enriching it with some new particulars, and preventing its lamp expiring amidst the general apathy.

1. *Celebrated Commentators.*—(1.) *Oribasius*, who lived in the fourth century, was the first author of importance noted in history after Galen. He wrote several works, of which only a portion remain. He freely avows his borrowing from prior authors, and especially Galen, the greater proportion of his materials ; and he has the great merit of reproducing the ideas of others with so much clearness, order, and precision, that the abridgments which he furnishes are thus rendered more useful than the originals themselves. His writings upon anatomy are extensive, but consist exclusively in a reproduction of those of Galen ; and so strong is his avowed predilection for that author, that he has so sensibly adopted his theoretical ideas, and even his expressions, as to have obtained for himself the cognomen of *Galen's ape*.

(2.) *Ætius* flourished towards the end of the fifth and beginning of the sixth century ; he appears to have been the first medical practitioner of any importance who embraced Christianity ; and, from his faith in the cure of diseases by miracle and invocation, he seems to have been a more ardent than enlightened professor of its doctrines. He possesses the same claims to our attention as Oribasius, having collected whatever he found remarkable in the writings of his predecessors into a body of doctrine in which nothing is omitted.

(3.) *Alexander* (*of Tralles*) enjoyed a brilliant reputation as a practitioner at Rome, and in his old age composed a book upon medicine. Like the foregoing, he professes a great admiration of Galen, but does not blindly adopt his opinions, at least as far as practice is concerned. There is much resemblance in the objects and execution of his work to that of Arctæus.

(4.) *Paulus Ægineta* probably lived about the end of the sixth and beginning of the seventh century. He acquired great celebrity, especially in midwifery—being the first practitioner, indeed, who rendered himself famous in the obstetrical department of medicine. He composed an abridgment of medicine in seven books, borrowing or even copying literally from his predecessors. In spite of his plagiarism, he is sometimes not destitute of originality, especially in the surgical portion of his book. He was evidently much accustomed to operations, many of which he describes more explicitly than Celsus, and, upon occasions, introduced the necessary modifications of these.

M. Malgaigne speaks much more disparagingly of this class of writers than does M. Renouard.

"The servitude to which the sciences were subjected was more oppressive in the Lower Empire than elsewhere. There were no longer observers or theorists. Compilers alone remained. Oribasius reduced the writings of Galen and others into seventy books, and then abridged this work into one of nine vols. Paulus Ægineta, in his turn, performed the office of abbreviator for Oribasius, and places before his work this humble and sad confession, 'that he had not taken up the pen to make original observations, seeing that the ancients had said all there was to say.' His only object was to prepare a convenient manual for those residing at a distance from large towns. Oribasius and Paulus had at least the merit of arrangement, but other compilers did not even take this trouble. Ætius prepared

a work four times larger than that of Paulus by the use of the scissors, cutting out portions of prior writings, placing his scraps under certain chapters ; and, descending still lower, Nicetas merely stitched entire treatises together, one after the other. He was not even a compiler, but a mere copyist.

"Without wishing to detract from Galen's just renown, it is evident that he was admirably served by circumstances, and that there is not much room for glorifying him over such disciples. When Henry Estienne, in the sixteenth century, assembled most of these authors into one collection, he placed on it the pompous title, *Artis Medicæ Principes*. Assuredly a strange one, for they better merited the names of slaves than of princes. A calamity, not sufficiently to be deplored, has made their fortune. The original writings having perished, we feel happy in the possession of at least faint copies of them. From this loss it even results that the compilers, who show some skill in their selections, are less precious to us than the mere copyists. Thus, for the exact history of surgery, Paulus Ægineta is very inferior to Ætius."—*Bulletin*, p. 168.

2. *Medical Organization.*—Upon examining in a general manner the medical organization of antiquity, we recognise *four distinct phases*, each corresponding to a particular condition of civilization. The first of these, occurring in the infancy of civilization, when the head of a family, or of a society, united in his person sovereign authority, the priesthood, and the secrets of science, may be termed *Patriarchal*, examples of it being found in the Jewish patriarchs and the Homeric heroes. (2.) When tribes had become united into nations, industry had made progress, and intellectual treasures accumulated, the memory of any one man proved insufficient for the retention of human acquisitions. Then the functions of authority were distributed in various modes, according to circumstances ; but with the remarkable one of the rites of religion and the exercise of medicine being long retained in the same hands. This is to be observed in the history of the Egyptians, Hebrews and Greeks, and in that of widely-dispersed countries, at a certain epoch of their civilization, as ancient Gaul and Britain, China, Japan, the New World, &c. &c. It even prevailed in modern Europe, at the time when feudal anarchy displaced the Roman civilization. This almost universal coincidence is explicable by the fact that, in ages of ignorance and superstitious credulity, diseases were looked upon as a chastisement of Heaven, or the result of evil influence, rather than as springing from natural causes : so that prayers, exorcisms, expiations and sacrifices were at least as frequently resorted to as natural means of cure. The priesthood, participating in these delusions, considered the cure of disease as one of their attributes. This phasis of the profession may then properly be termed the *Sacerdotal*.

(3.) A time arrived, however, when medicine was no longer confined to the hands of the priesthood, and its occult secrets were laid open to the public. In Greece, this change commenced about the beginning of the fifth century B. C., after the dispersion of the Pythagoreans. No initiation or special preparation was now rendered peremptory. Science gained by the change, but the profession came to be regarded by the public as merely one of the means of money-getting. The change took place much later at Rome, for, until the time of Asclepiades of Bythinia, it was exercised under the patriarchal form, the priesthood not interfering with it more than any other classes. Cato the Censor much occupied himself with this species of domestic medicine, and pursued with the bitterest hatred those of

the Greeks who practised professionally at Rome. The Greek physicians who resorted to Rome, however, by their intriguing, abandoned conduct and ignorance, justified many of his reproaches. Galen draws a most unfavourable picture of their manners and practices. No examination as proof of ability was demanded, and any impostor who chose usurped the title of physician. The excess of the evil, however, at last became insupportable and brought its own remedy. This third phasis may be termed the *Free Laical.*

(4.) The above-named abuses led to the interference of the legislative power, and a new phasis of the profession, which may be termed the *Legal* or *Organized Laical*, took place. The Emperor Antoninus Pius (A.D. 138—161) was the first to occupy himself with the subject, although we do not find that any true organization by means of examinations took place before the period of the Christian Emperors. After that period, the title *archiater*, which had formerly been used merely as an honorary appellation, and sometimes usurped by pretenders, became applied only to those who were attached to the Court as medical officers, or who, in the cities, had the duties of examining and admitting candidates to practice assigned to them. They were paid by the state, had many immunities, and treated the poor gratuitously. About the year 400 of our æra, a class of persons first employed themselves in the preparation of the *medicines* prescribed by the physicians, before which period these last prepared themselves, or with the aid of their disciples and servants, the remedies they required, as may be seen in several passages of Hippocrates and Galen. The *pharmacopoles* mentioned prior to this, were only druggists or herborists, from whom the physicians procured the simples necessary for the confection of their elaborate prescriptions.

3. *The Accessory Institutions of Medicine.*—Under this title M. Renouard comprehends hospitals, dispensaries, and the various other appliances for the treatment of the sick and infirm, and the instruction of the student. Neither the Greeks nor Pagan Romans were provided with any institutions resembling these; and it is to Christianity we are indebted for their first establishment. A Roman Christian lady, Saint Paula, having, towards the end of the fourth century, repaired to Jerusalem, and founded there a religious society for the practice of good works, the sufferings of the pilgrims during sickness who repaired to that city, excited her sympathies, and induced her to open asylums for their succour. Emperors, Kings and Caliphs afterwards signalized their zeal by the erection of sumptuous edifices for the reception of the sick; and these establishments, at first founded in a merely philanthropic view, afterwards became admirable instruments for the profit of art and the advancement of science.

We will extract M. Renouard's general view of the period.

" In the time of Galen they only dissected animals, and this professor tells us that he made his anatomical demonstrations on apes, whose structure so much resembles that of man. Occasionally the physicians who followed the armies obtained permission to examine the body of some barbarian found on the field of battle; but eventually dissection was entirely discontinued, and the conformation

of the human body only studied in books. The horror of the early Christians at cadaveric researches was now more marked than that of the Pagans; and the Fathers of the Church launched their anathemas against any who should thus violate the remains of the dead. This abandonment of anatomy doubtless much contributed to the decay of the art of healing; but other causes powerfully concurred in favouring this. First among these we may place the rapid progress of Christianity, which disorganized the Pagan schools, discredited the profane sciences, ruined their teaching, and gave rise to a passion for religious controversy. Secondly, the small number of persons still attached to the culture of the natural sciences, trammelled by a vicious method, sought for the explanation of the phenomena of Nature only in the writings of the ancients, and, not daring to make any change in received doctrines, heavily toiled along the narrow path of the past.

"But if this period was not fertile in scientific progress, it was so in social ameliorations. The commencement of the organization of medical teaching and practice was perhaps more profitable to humanity than a few additional discoveries in science would have proved; for the excesses of charlatanism had reached their utmost height. A law destined to place a bridle on these, by exacting certain conditions of skill and reputation in the aspirant, responded to an urgent necessity, and proved, as it always must, a public benefit. Lastly, the charitable institutions, of which this epoch furnished the first models, prepared a future, fertile in the sources of medical instruction. The first period then of the Age of Transition is not entirely profitless for the culture of science, and especially for humanity."—P. 409.

6. *The Arabic Period.*

[From the Destruction of the Alexandrian Library, A.D. 640, to the End of the Fourteenth Century.]

Contrary to what might have been expected from the fanatical zeal with which the early Arab conquerors had destroyed the Alexandrian Library, many of their caliphs proved the most enlightened protectors and encouragers of literature; and that with a freedom from religious bigotry which induced the persecuted of other countries to resort to their courts for protection and improvement. The celebrity which many of the cities of Moorish Spain achieved likewise attracted students to them from all parts.

1. *Arabic Medicine.*—The first physician of eminence who wrote in the Arabic language was *Rhazes*, for many years a distinguished professor at Bagdad, and physician to the large hospital of that city. He seems to have acquired a rare success in the treatment of disease, and, from his vast experience, obtained the cognomen of "Experienced." He wrote much, but most of his works are lost. The principal one remaining, the *Continens*, a large compilation from various authors, made for his own use, would be of rare interest, did not the faithlessness of the versions, as M. Malgaigne observes, in which we have it, take much from its value. "Rhazes," adds this writer, "like Ætius, has preserved a multitude of the fragments of antiquity, which are only to be found in his collection; and, not content with drawing from so fertile a source, he furnishes us with many extracts from Indian and Persian manuscripts, which no one seems to have possessed subsequently to his time. In spite, too, of his submission to authority, we find, in some of his works, the signs of a man

who has not renounced thinking and observing for himself." The Conti-
nens is moreover interesting as containing descriptions of new remedies
introduced to the Arabs, and an account of the *eruptive fevers*, under the
name of variolæ, first described by this people. This work enjoyed a great
reputation among future Arab and even Latin writers, who freely em-
ployed its abundant materials, re-disposing them in better order, and
correcting some of the errors. *Ali Abbas* rendered himself famous for
the production of his *Almaleki*, which is chiefly extracted from the Con-
tinens.

Avicenna, surnamed the Prince of Physicians, was born in the year 980.
His enthusiasm for study was immense, and he achieved for himself an
immense reputation at Bagdad. His chief work, the *Canon*, was in fact,
for five or six centuries, the classic book or medical code of Europe and
Asia; and no author since Galen ever enjoyed so vast and durable an
authority. The work is nevertheless nothing but a compilation from prior
authors, especially Rhazes himself, as we have seen, a compiler from the
Greeks and Romans. He takes Galen and Aristotle as his models, even
surpassing them in subtlety and their other defects. His chapters on the
Eruptive Fevers have however deservedly met with much approbation.
He, as well as the other physicians of the period, recognised but two
classes of these, the *variolæ*, or eruptions consisting in any description of
pimple filled by fluid, as pustules, varioles, &c.; and *morbilli*, consisting
of those in which the skin is covered with patches or spots, having scarcely
any elevation, and containing no fluid. These last were termed *morbilies*,
which signifies small disease or pestilence, as being of less gravity, and
engendered by a smaller portion of morbigenous matter. At this period
the eruptive fevers were classed with pests or epidemic pestilential fevers.

After the death of Avicenna, Arabic medicine declined, but recovered
some portion of its renown in the hands of *Albucasis* in Spain, *Avenzoar*,
and *Averrhæs*, during the course of the 12th century, afterwards to dis-
appear for ever. *Albucasis* produced a work which, but a mere compila-
tion, is still interesting for the description and drawings of surgical instru-
ments it furnishes.

Although placed so much nearer the sources of antiquity than ourselves,
the Arabs had more incomplete notions than we of its acquirements; for,
notwithstanding they have preserved to us some fragments of the Greek
authors now derivable from no other source, yet we have a far greater
number of which they were ignorant. Moreover, they entirely neglected
the Latin authors. Anatomy and physiology in their hands were retro-
grade; for, not themselves dissecting, they only copied the descriptions of
Galen, adding to the original imperfections of the authors the additional
ones of translation. Pathology, we have seen, was enriched by accurate
descriptions of the external characters of the eruptive fevers; and Thera-
peutics made likewise some acquisitions by the substitution of mild aperi-
ents, as senna, cassia, and manna, for the drastics employed by the ancients.
Many pharmaceutical and chemical improvements were likewise due to
the Arabs, such as the preparation of syrups, spirits, distilled waters.
Surgery also received some insignificant additions in the shape of un-
guents, plaisters, &c.—far from compensating it, however, for the aban-
donment of numerous operative procedures in use by the Greeks.

The utter extinction of Arabic medicine is thus explained by M. Malgaigne.

"Doubtless we must make great account of the decay of the nation itself; for civil wars, defeats, and invasions, are ill suited to the development of the sciences. But other powerful empires have become founded in Asia and Africa upon the ruins of the Arabic, having the same religion, manners, and language; and yet the schools have remained dumb, and the sciences have ceased to flourish. It is because the intolerance of Islamism, for some time softened down by the liberality of the Caliphs, re-appeared in all its violence under their successors. Two years after the death of Avicenna the Turks seized Persia, carrying with them all the fanaticism and barbarity of new converts; and Averrhœs, the last of the celebrated physicians of Spain, for having somewhat too liberally expressed his opinions, was deprived of his honours and prosperity, and forced to retract at the gates of a mosque, those present spitting in his face. We can understand why he had no successors.—*Bulletin*, 170.

2. *On Greek Medicine during the Arabic Period.*—While the Arab name was rising to the summit of the social and intellectual scale, that of the Greeks descended lower every day; and but one author, during a period of near 700 years, challenges the attention of the historian of medicine, that of *Actuarius*, who flourished in the 13th and 14th centuries. The last work from his pen which remains, *De Methodo Medendi*, is literally a reproduction of Galen's doctrines, but arranged with remarkable lucidity.

3. *On Latin Medicine during the Arabic Period.*—The disorganized condition of Western Europe during the dark ages, which constitute the larger portion of this period, although eloquently depicted by our author, is too familiarly known to require notice here. During the course of the 13th and 14th centuries the darkness began to dissipate, and a few men of genius and talents shone out from amidst the general mass of ignorance and superstition. The writings of *Dante, Petrarch, Boccacio*, revived the good taste and pure language of the learned ages, while *Leonardo of Pisa* introduced a knowledge of the Arabic figures and algebraic characters. Amid the profitless scholastic and theological discussions which alone possessed excitement for the learned men of the period, *Roger Bacon*, so much in advance of his times, sent forth those wonderful previsions of scientific reform and future discovery, which ensured for him the persecution of his contemporaries, and the admiration of posterity.

4. *Medical Organization.*—We have already described the commencement of medical organization in the empire prior to the destruction of the Alexandrian School, and it is probable that this was maintained in the Greek empire of Constantinople. As to the countries submitted to the Arabs, we know, in many cities, schools and academies were founded for teaching and improving the medical art; but of the nature of their government, and their mode of dealing with candidates, we have no account.

[*We had at first intended to have divided this article into two portions for successive numbers of the Journal; but believing, upon reconsideration, that the interest of the subject will be best maintained by presenting it entire and complete at once, we have resumed our analysis of M. Renouard's most interesting volume at page* **399** *of the present Number.*]

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[Continued from No. IX., p. 233.]

VII. AN ACCOUNT OF A CASE IN WHICH THE CORPUS CALLOSUM, FOR-
NIX, AND SEPTUM LUCIDUM WERE IMPERFECTLY FORMED.   By *James
Paget*, F.R.C.S., Warden of the College, and Lecturer on Physiology
at St. Bartholomew's Hospital.

The brain described in this paper was found in a girl 21 years old, who
died in St. Bartholomew's Hospital with pericarditis, and who had pre-
sented, while under observation there, nothing remarkable in the condition
of her mind.   The appearances presented by the brain are carefully and
minutely described by Mr. Paget.   In the hope of obtaining some guidance
in the obscure physiology of the corpus callosum, he made careful enqui-
ries into all that concerned this patient's mind.   He could "not find
otherwise than that this girl's mind was one of the least remarkable kind.
Her only peculiarity was vivacity, and a want of caution, showing them-
selves in an habitual rapidity of action and want of forethought, delibera-
tion and attention.   Certainly she could not be regarded as unusually
deficient in either moral goodness or intellectual power."
Instances in which the corpus callosum is deficient without any other
serious wrong condition of the brain are rare.   Mr. Paget states the chief
facts of three other recorded cases: one related by Reil, a second by Mr.
Solly, and the third by Mr. Chatto.   These cases suggest some interest-
ing observations on the anatomy, development, and functions of the
corpus callosum.   We have only space for the following remarks :—

"On the whole, these cases force us to think that the corpus callosum has its
office as an organ for the highest operations of the mind.   But of what part of
the mind it is one of the ministers, and how its function is discharged, we have
no evidence whatever.   Its structure indicates that it is not a nervous centre,
neither a source of nervous power, nor a first recipient of the influence of the
mind: for it is composed wholly of nervous filaments, such as, elsewhere, have
no higher office than that of conducting impressions, and are incapable of either
originating, controlling, or diverting them.   If, therefore, as a reasonable hypo-
thesis, we adopt the general expression of the office of this and other commis-
sures, that 'they serve to ensure unity or harmony of action between those parts
of the brain between which they are placed,' we must use it as meaning, for the
corpus callosum, not that it is a centre of action from which similar, and there-
fore, harmonious influences proceed to each side; but that it is formed of con-
ductors, by which a part on one side of the brain is informed (as it were) of the
state of some part on the other side, and, probably, is induced into the same state.
But, whatever may be meant by this and any similar forms of expression, they
must be held as only hypothetical; there is no substantial evidence for their truth."
—P. 73.

Mr. Paget states, in conclusion, that many of the facts adduced in this
paper afford support to the doctrine of the brain being a double organ,

a subject to which attention has lately been directed by the vigorous writings of Dr. Wigan.

VIII. CASE OF ANEURISM PRESENTING SOME PECULIARITIES; WITH RE-
MARKS. By *Prescott Hewett*, Esq., Lecturer on Anatomy at St.
George's Hospital School.

G. B., æt. 31, was admitted into St. George's Hospital, in May, 1839, with a pulsating tumour, of the size of a pullet's egg, in the left groin, about an inch below Poupart's ligament, and apparently connected with the common femoral artery.   Sir B. Brodie applied, on the 30th of the month, a ligature to the external iliac artery, and all pulsation in the tumour ceased immediately.   Peritonitis followed, but he recovered from it. The ligature separated on the 25th day; the tumour in the groin became solid and decreased in size, and the patient was discharged cured August 14th.   At the latter end of November he was re-admitted on account of a return of slight pulsation, and a whirring sound in the tumour, which had slightly increased in size.   By pressure with graduated compresses all pulsation and sound disappeared and the patient was once more discharg- ed.   In Nov., 1841, there was a slight recurrence of pulsation without increase in size, and no plan of treatment was adopted.   In January, 1842, the tumour was observed to have increased in size, but no pulsation what- ever could be detected in it.   "From this period the tumour gradually but steadily increased in size for the ensuing twelve months, during which time it grew to the size of the egg of an ostrich; its surface was some- what irregular, and softer in some parts than in others, although the tumour itself was perfectly solid.   During the whole of the time neither pulsation nor sound of any kind could be detected in the tumour."   In January, 1843, the tumour became stationary, and some time afterwards it began to diminish; the decrease in size continued until July of the same year, when the patient died of phthisis.

At the examination of the body, the tumour, when separated from the neighbouring parts, was of the size of a full-grown fœtus, slightly irregular on its surface, but perfectly solid throughout.   Upon being cut into it presented the characteristic layers of coagulated blood observed in aneu- risms which have been cured.

"The portion of the superficial femoral artery, about two inches, with which this aneurism was connected, was flattened, completely obliterated, and identified with the tumour, below which the cavity of the artery was filled with a coagu- lum, about an inch in length, somewhat smaller than the vessel, and adherent to it at its upper part only; the remaining part of this vessel presented a natural appearance.   The whole of the common femoral was dilated to the size of the common iliac, and irregular on its surface, the irregularity depending upon some smaller dilatations superadded to the general dilatation, which extended up to the external iliac, at the point of the giving off of the epigastric and circumflex arteries.   The internal surface of this dilated vessel was covered by thin layers of coagulated fibrine, which, beginning a little below the origin of the epigastric, were continued downwards into the upper parts of the superficial and deep femo- ral arteries.   In the superficial femoral, these coagula completely blocked up the cavity of the artery; but in the deep and in the common femoral, they merely

formed a lining to these vessels, a large and distinct channel being still left for the passage of the blood. This channel was, for the greater part, perfectly smooth and lined by a membrane, of new formation, presenting all the characters of the serous coat of the artery, for which it might easily have been mistaken. Both the membrane and the coagula were, however, with a little care, detached from the internal coat of the artery, which did not appear to be diseased. These coagula did not pass further than half an inch down the deep femoral ; below this, the coats of the artery presented a perfectly healthy aspect.

" The external iliac artery, from a little above the origin of the epigastric and circumflex to within a quarter of an inch of the common iliac, was completely obliterated and reduced to the size of a small quill ; the point at which the ligature had been applied was marked by a constriction, situated about an inch above the origin of the epigastric. The various branches given off from the external iliac, and from the common and deep femoral arteries, were much larger than natural."—P. 78.

Mr. Hewett notices, as remarkable in this case, the long intervals which elapsed between the two periods, when the pulsation recurred; intervals during which the tumour presented all the appearances of being cured. He observes :—

" No abnormal distribution of the arteries having been found, the re-appearance of the pulsation is to be explained by the situation of the aneurismal tumour, which, when once the collateral branches were sufficiently dilated, became affected by the large current of blood brought into its immediate neighbourhood—a current of blood sufficient to overcome, for a time, the efforts made by Nature to establish a cure, which she ultimately accomplished.

" The great increase in size which this aneurism presented, even after all pulsation and all sound had ceased in it, is a fact worthy of the attention of all practical surgeons. By this increase in size, and the other circumstances accompanying this aneurism, several experienced surgeons were led to the supposition that the tumour was of a malignant character, and supplied with large arteries, the growth of which had been checked for a time by the obliteration of the external iliac artery."—P. 79.

Lastly, attention is called to two points of pathological interest, viz. the formation of the thin delicate membrane lining the common femoral from the blood, and the liability, should blood pass between the membrane and the internal coats of the dilated vessel, of the appearances being mistaken for what is termed a dissecting aneurism.

This is a case of interest, and well related.

IX. Case of Cyanosis of forty years' standing, depending upon Congenital Obstruction in the Pulmonary Artery, and Patulous Foramen Ovale. By *Robert Spitta*, M.B., Lond., House-Surgeon to St. George's Hospital.

The patient, a female æt. 40, of diminutive stature, pigeon-breasted and affected with cyanosis from birth, was suddenly seized with dyspnœa and partial syncope, accompanied at first with convulsions, and afterwards with intense pain referred to the epigastrium, loins, and hypochondria. This condition continued 24 hours, when, after a slight struggle, she expired. On examination of the body, the principal change in the heart was hypertrophy of the right side, the right ventricle being as thick as the

left ventricle, and the right auricle three times as thick as the left auricle. The foramen ovale was patulous.

"The pulmonary artery was so malformed at its root as to render an accurate description of it extremely difficult. Besides the three semilunar valves usually found there, it presented an adventitious membrane situated immediately above them, and stretched completely across the artery, like the diaphragm across the body. This membrane was a line in thickness, and perforated in its centre, not by a circular foramen, but by a mere slit two lines in length and a line in breadth, with margins of a red colour, and fringed with fibrine of the blood. The three semilunar valves were thrown up as they are naturally in a healthy pulmonary artery during the systole of the heart, and fixed in that position by the adhesion of (what would have been) their free borders to the adventitious membrane."—P. 83.

Mr. Spitta infers, no doubt correctly, that the membrane which obstructed the pulmonary artery was a congenital malformation. He is of opinion that the circulation of imperfectly oxygenated blood impaired so function so much as the formation of animal heat, of which, it appears, the patient was remarkably deficient.

X. On the Ganglionic Character of the Arachnoid Membrane of the Brain and Spinal Marrow. By *George Rainey*, M.R.C.S.

Mr. Rainey observes, at the commencement of this paper—

"As I believe it has never been supposed by physiologists that there exist within the cavity of the cranium an especial provision of organic nerves for the supply of the cerebral vessels, corresponding to those which, in the abdomen, go from the cæliac ganglia to the vessels of the viscera—the arachnoid serving as a membranous plexus in which they ramify—the announcement of this view can scarcely fail to be received by anatomists and physiologists with extreme doubt. Under this impression I have considered it admissible, at the commencement of this paper, to state, that the views herein set forth are based entirely upon anatomical facts, which I have endeavoured to describe in such a manner as will most facilitate the verification of their accuracy: for this purpose, also, I have detailed these facts and discussed their physiological application nearly in the order they occurred, whilst occupied in their examination."—P. 85.

It is plain, from the preceding statement, that it would be fruitless to attempt giving a condensed account of the facts and inferences drawn from them, which are detailed in this paper. It must be carefully examined with the assistance of the plates to be appreciated. The views of the author are novel and interesting, and cannot fail to attract attention. But it must be recollected that, in the microscopic examination of nerves, there are many sources of error; and of this no more striking example need be given than the recent controversy respecting the nerves of the uterus. It is, however, due to Mr. Rainey to say that he narrates his facts truthfully and faithfully. He states what he has really seen, and not what he wishes to see in order to support a preconceived theory, and he moreover fairly invites enquiry. It is a pleasure to meet with so honest and zealous an enquirer as Mr. Rainey, considering the little encouragement which is given in this country to the pursuit of microscopic anatomy and physiology.

· XI. An Account of a Case of partial Double Monstrosity.
    (Ischiopage Symelien of Geoffroy Saint-Hilaire, Heteradelphia of Vro-
    lik.)   By *William Acton*, Esq., Surgeon to the Islington Dispensary.

The subject of this curious case was a Portuguese child, six months old,
exhibited in London during last Spring, and rendered sufficiently notorious
by a placard not remarkable for its decency, in which the infant is charac-
terized as " the Human Tripod, or three-legged child, and first Bipenis
ever seen or heard of."   The monstrosity is thus described by Mr. Acton.

" Below the umbilicus, and to the right and left of the mesial line, are two
distinct penes, each as large as the penis of a child of six months old: their
direction is normal.   I may mention that water passed from both organs at the
same moment, during the time that Dr. Cursham and Mr. Perry were examining
the infant with me.   Each penis is provided with a scrotum, the outer half of
each scrotum containing one testicle, the inner half of the scrotum is far removed
from the outer, and the two inner halves appear like another scrotum between the
two penes.   Between and behind the legs of the child, we see another limb, or
rather two lower extremities united together in their whole length.   The upper
part of this compound limb is connected to the rami of the pubis by a short
narrow stem half an inch in length, and as large as the little finger, apparently
consisting of separate bones or cartilage, for, on moving the compound limb, at
the same moment the finger is kept on the stem, crepitation is felt, but I could
not detect any pulsation.   Immediately beyond this stem, and concealing it, the
compound limb assumes a size as large as the compound natural thighs of the
child, and within the upper part irregular portions of bone may be felt (probably
a portion of a pelvis and the heads of the thigh bones), which may be traced
down, united together into one mass, to a leg of comparative small size, though
still larger than either of the healthy legs, and terminating by a double foot in
the position of *talipes*, with the sole turned forwards, and furnished with ten toes,
the two great toes being in the centre of the others : the two outer toes on each
side are webbed.
" When the child is placed on its belly, the spine and back present a perfectly
normal appearance ; the anus is in its usual situation ; the functions of the bowels
are duly performed.   Viewed in this position, the compound limb assumes a
roundness and fulness equal to the buttocks of a young child, and a slight de-
pression is observed, as if for the anus.   Tracing the limb downwards, we find
only one patella, which is on the same aspect of the limb as the anus, the joint
bends freely, and the compound extremity terminates as above described.   This
compound limb is quite motionless, the upper portion alone appears endowed
with sensibility, its vitality seems low, as the toes have a bluish appearance ; the
upper portion, however, is of the same temperature as the body of the child."
P. 105.

Mr. Acton has not been able to meet with any recorded case analogous
to this.   He discusses the question of removal of this compound limb, and
is of an opinion that every circumstance is in favour of an operation.   He
particularly notices the low vitality of the limb, observing that, with every
precaution that can be taken, the toes have now a bluish appearance, and
the history of partial double monstrosities shows, that any, however slight,
scratch or contusion heals slowly, and generally ends, at first, in the death
of the part, and subsequently of the child.   " If the infant escapes this
source of danger, its system is found incapable of supporting this addi-
tional limb, and the child perishes from debility.   There can then, I think,

be no doubt that an operation will be necessary, to give the child a chance of arriving at puberty ; and, in the absence of any one counter-indication, I think all will agree, the sooner this is performed the better, for the security of the child."

This child has since been exhibited in Paris, and we have noticed in the journals that more than one eminent French surgeon has expressed an opinion favourable to an operation. This paper is illustrated by an indifferent lithograph of the monstrosity.

XII. Some Remarks on Wounded Arteries, Secondary Hæmorrhage and False Aneurisms. By *Robert Liston*, F.R.S., Surgeon to University College Hospital.

The object of the author in this paper is clearly to justify the practice pursued by him in the treatment of the case of the late Mr. Seton, who died after a wound received in a duel at Portsmouth. This gentleman was 28 years of age, exceedingly corpulent, and had lived excessively freely for a series of years. He was wounded by a pistol bullet on the 20th of May 1845. The ball entered the upper and outer part of the right thigh and passed out in the middle of the fold of the left groin, thus traversing the course of the femoral vessels. The flow of blood was described to have been most impetuous and profuse, the blood being thrown in jets to a considerable distance—it was said, two or three feet. The patient was found by Mr. Jenkins of Gosport in an almost lifeless state, and he was with great difficulty recovered from the syncope and depression. A considerable swelling soon supervened over the lower part of the abdominal parietes from extravasation of blood.

May 27th. The seventh day from the receipt of the injury the swelling in the right groin began to increase in size, and distinct pulsation was then perceived in it. The tumour went on increasing gradually, and it had gained much more in bulk on the tenth day, when Mr. Liston first saw him, than it had done on any of the preceding ones. It was of an oval form, and elastic but firm, as if it was partly made up of coagulum and liquid blood. Pulsation was strong and distinct in all its parts. The opening on the right hip was filled up with a dry depressed slough ; the wound in the left groin, a jagged slit, was closed by a very thin cicatrix. The patient's countenance was blanched and waxy, and his pulse quick and feeble. He had, in short, all the appearance of a person who had lost a great quantity of blood.

The nature of the case, Mr. Liston states, was very apparent. A large false aneurism, not well bounded, rapidly increasing and arising from a wound of the femoral artery, or of some branch divided close to its origin, had to be arrested, otherwise the patient must be left exposed to the risk of perishing suddenly and at no distant period. After consultations on the evening of the 30th and morning of the 31st, the external iliac artery was tied up with the loss of not more than a table-spoonful of blood, and with the immediate effect of arresting the pulsation, and removing, in a great measure, the tension of the tumour. Symtoms of peritonitis super-

vened the same evening, and on the following afternoon the patient sunk.

Mr. Liston subjoins the following account of the post-mortem examination by Dr. Allan of Haslar. The course of the bullet was traced from the outside through a dense layer of fat, about two inches in thickness. It had divided one of the superficial branches of the femoral artery, about half an inch below Poupart's ligament, and about an inch from the main body of the femoral artery, which had caused a false aneurism. The sac contained about three ounces of blood. No other artery appeared to have been wounded. A considerable quantity of sero-purulent fluid was found in the abdominal cavity, and patches of acute inflammation were observed on the intestines. The peritoneum adjoining the wound of the operation was inflamed. It had not been injured by the knife. The ligature had been properly applied to the external iliac artery. The abdominal viscera were healthy, but loaded to an extraordinary degree with fat. There was some enlargement of the right limb, but apparently no mortification. The femoral artery was pervious. " The course of the ball was through a bed of fat, fourteen inches in length and three inches in depth, over the pubes, and no muscular substance was injured." The blood in the aneurismal sac was firmly coagulated, and there was no mark of recent oozing from the injured artery. The ball had passed immediately over and along the course of the artery for about half an inch before dividing it. " It was given off from the fore part of the femoral artery, about half an inch below Poupart's ligament, and passed in the direction of the pubes. Between its origin and division there was not more than an inch of extent. I raised it with the forceps from its attachment in the bottom of the wound, from the part where it was divided, to where it passed through the fascia, down to the femoral artery ; and although it was not actually detached, it would not have borne a ligature."

Mr. Liston remarks, " that a vessel of this class should have bled so furiously in the first instance, could not have been anticipated. Having done so, one can so far understand the active pulsation and rapid extension of the tumour." We question very much the accuracy of the account of the furious hæmorrhage in the first instance. It was not witnessed by any surgeon, and we well know the proneness of bystanders to exaggeration in respect to bleeding wounds, and the description of the hæmorrhage given in the paper it is evident cannot be relied on. It was a deep wound in a fat subject, and the external opening did not correspond with the divided artery, for it is stated that " the ball had passed immediately over and along the course of the artery, for about half an inch before it divided it." The rent in the clothes made by a bullet is small, and the clothes being loose, this rent was not likely to correspond so exactly with the wound as to admit the passage of blood in an uninterrupted current, and yet we are told that the blood was " thrown in jets to a considerable distance—it was said, two or three feet," an occurrence which, under the circumstances, we believe to have been improbable, if not impossible. Mr. Liston adds—

" It was, of course, quite impossible in this case to determine whence the blood flowed into the aneurismal cavity. The principal vessel going to the limb might, for what we know, have been wounded, or some considerable branch, as

the epigastric, the external circumflex, the external pudic, or perhaps a considerable common trunk sending off the superficial epigastric, and branches to the inguinal glands, near their origins from the iliac, or common femoral. The division of even a small branch close to the principal vessel, it is well known, pours out blood furiously, as much so, in fact, as if an opening in the coats of the artery itself were, so to say, punched out, corresponding in size to the area of the branch. 'The division of an artery of the size of the last referred to (small muscular branches, which spring from most arteries at irregular intervals), at a distance from the source from which it springs, is of little importance. It contracts, and soon ceases to bleed. But when it is divided close to the trunk, blood issues from it, as it would if an opening, equal in size to the calibre of the little branch, were made in the trunk itself.'—Quain's Anatomy, 5th Edition, p. 595. This I have actually experienced in operating on the femoral artery in the groin, as will appear by and by."—P. 112.

The observation here quoted from Mr. Quain clearly applies to a vessel divided close to the trunk, in fact immediately as it comes off from it, and is true enough, as no contraction of the orifice can occur, since the vessel divided is entirely removed, and the opening is equivalent to one made in or punched out of the coats of the main artery. But the observation is totally inapplicable to Mr. Liston's case. Dr. Allan, who made the post-mortem examination, states that the superficial branch was divided about an inch from the main body of the femoral artery—which is a very different affair from a wound close to the trunk. The coats of a small superficial artery, divided an inch from the trunk, may not only contract so as to arrest all bleeding, but have sufficent space for the formation of a firm coagulum. Indeed, we contend that if the wound had occurred at the distance of even a quarter of an inch, the coats of the vessel would still have been capable of the contraction which ordinarily occurs in these small vessels. It seems to us that Mr. Liston completely fails in offering a satisfactory explanation of the furious bleeding and the formation of the large false aneurism. We think that this eminent-surgeon made an erroneous diagnosis, in concluding that a large vessel, instead of a small branch, was wounded—and we express this opinion with no view of ascribing blame to him on that account, considering that he had only imperfect and second-hand information—the difficulty of making a satisfactory examination, in so fat a subject, the apparent course of the ball, and the depressed condition of the patient, the conclusion may be justified by the circumstances of the case, and be such as would have been arrived at by any other skilful surgeon. But we do blame Mr. Liston for not fairly admitting his error—for endeavouring, by bad reasoning and special pleading, to convince us that it was no error at all, and that the effects of a division of an insignificant branch was as dangerous as a wound of the femoral artery itself.

Mr. Liston, having made up his mind as to the nature of the case, pursued what, if he had been correct in his conclusion, would have been the right practice, and a course which, under the circumstances of the present case, we think no surgeon who has experienced the difficulties of practice would be hasty in condemning. It has been stated that the operator ought to have opened the sac and secured the wounded vessel by ligature, and we have no doubt, notwithstanding the tenor of his remarks, that had he been able to ascertain the exact nature of the case, he would have

done so, but, under the impression that the femoral itself or a large branch was wounded, he rightly urges that this would not have been safe practice, remarking that patients who have lost a great quantity of blood are often lost by the effusion of even a small quantity, and, after adducing some cases in point, he observes, that the danger must " be very much enhanced when the tumour is so placed that there is no possibility whatever of making pressure on the trunk of the artery on the proximal side of the opening into it, or of the origin of any branch wounded close to where it is given off. In the case of Mr. S., the principle of tying the artery, where wounded, could not possibly be carried out with any propriety. It was not known what vessel was really implicated, and this could not be known during life. If the tumour had been lower down, somewhere in the thigh, the question of cutting into the sac might have been entertained." We are fully ready to admit that Mr. Liston adopted a proceeding—a bold one it is true, which may be justified by the *apparent* circumstances of the case. But he goes on to remark :—" As it was, the cyst could not have been opened without great loss of blood, however dexterously and boldly it might have been set about. Even knowing, as we do now, from whence the blood came, it was not likely that the application of a ligature to the branch would have permanently arrested the bleeding. Indeed, it is distinctly stated by Dr. Allan that the vessel would not have held a ligature." Now, after knowing the result of the post-mortem examination, that merely a superficial branch of the femoral artery was wounded at the distance of an inch from the main trunk, and that there were only three ounces of extravasated blood found in its vicinity, we can see no good reason why the sac might not have been laid open, and the wounded vessel tied, without any difficulty whatever. Dr. Allan does not state why the vessel would not have held a ligature, and we cannot conclude that it was too much injured to have borne one, because, in that case, it would be very unlikely to have bled, as every pathologist knows that a vessel torn across, and much lacerated or contused, rarely indeed pours out blood.

Mr. Liston observes, that the placing of a ligature upon the external iliac, so as to favour the coagulation of the contents of the tumour and the permanent closure of the wounded vessel, seemed to afford the only chance of safety, and he asks if there is any thing to bear a surgeon out in adopting this practice ? "Can any cases be brought forward to show. that vessels bleeding outwardly, or pouring their contents into the tissues of a limb or region, have ever been put in a way of being permanently closed, in consequence of the flow of blood being intercepted and weakened for a time, by the application of a ligature upon the principal arterial trunk ?" Every surgeon who has had any experience must have witnessed cases of this kind. Mr. Liston adduces three cases of wounds about the hand, attended with secondary hæmorrhage, in which the practice succeeded, though he admits, at the same time, that the practice cannot be expected to be uniformly successful, and mentions two cases in which bleeding returned after ligature of the brachial artery. The proper treatment to be adopted in such cases is no doubt an important practical question, but we cannot see that it applies in any way to the case of Mr. S., because, in this instance, had a large vessel been wounded, as Mr. Liston

expected, instead of an insignificant one, compression of the main trunk above the wound was impracticable. For the same reason we shall not detain our readers with the treatment of secondary hæmorrhage from stumps, by ligature of the principal artery of the limb, cases of which are mentioned by the author to support the practice he pursued. He states—

" A few cases may be added in which secondary hæmorrhage followed wounds and ulcerations of arterial trunks and branches, and others in which false aneurisms formed, and where the practice of securing the trunk at some distance by impeding for a time the flow of blood to the part, gave opportunity for the curative process of nature to close the wounded vessel permanently, so that the lives of the patients were thus preserved."—P. 122.

Some of these cases are to the purpose, and are of considerable interest, but our space only permits us to quote one of them, the last.

" It is to be found in the works of a well-known army surgeon. A man, thirty years of age, was wounded on the glorious 18th of June, by a musket-ball, which entered the left groin a little below Poupart's ligament, and passed through the inside of the thigh.

" ' On the 29th, (mark, the 10th day from the injury,) the slough from the anterior wound came away, and was followed by so frightful a hæmorrhage as to leave no doubt whence it proceeded, nor (from the wound being so high up) any alternative as to the means to be adopted for stopping it.'

" The external iliac was tied, but the patient died of fever on July 5th : there is, however, no account given of any dissection of the parts.

" ' In this case the necessity of the operation is evident, and as far as it went, also, its success. Not a drop of blood was lost after it.'—So says Mr. Guthrie, who, it is to be presumed, conducted the treatment of the patient. We are here left to conjecture what vessel was really wounded. It is said ' that there could be no doubt as to whence the hæmorrhage proceeded ;' but it may have been from a branch, as likely as from the trunk, and those who have attended to the description of the hæmorrhage in the case of Mr. S., to its impetuosity and amount, will bear me out in this assertion. The external pudic, or external epigastric, or one of the circumflex arteries, may have been here cut off close to their origin, just as likely as that the femoral was wounded."—P. 128.

The significant manner in which this case is mentioned seems to imply, what indeed his writings fully show, that Mr. Guthrie condemns the practice recommended and adopted by Mr. Liston, viz. securing the main artery at a distance from the wound on account of secondary hæmorrhage, instead of the injured vessel itself. We cannot now discuss this question, and, as before stated, it has no direct bearing on the case of Mr. S. Mr. Liston concludes :

" I have thus endeavoured to show—

" 1st. That the case of Mr. S. was one of great and immediate danger.

" 2dly. That some decisive step required to be taken, and that without a day's delay, in order to avert the danger that impended over him.

" 3dly. That very great risk would have been incurred in searching for and attempting to put a ligature upon the wounded part of the vessel.

" 4thly. That there is ample authority for adopting the step which was had recourse to in the case. Ligature of the external iliac was undertaken, in order to ward off the expected fatal termination, through a sudden escape of arterial blood."
—P. 129.

We, on the contrary, have endeavoured to show that Mr. Liston

mistook the case—that it was not one of such great and immediate danger as he supposed, or as the history and symptoms led him to infer—that no operation or decisive step was really required—that no particular risk would have been incurred in placing a ligature upon the wounded vessel —and, we may add, that there is no authority whatever for applying a ligature to the external iliac for a wound of a superficial branch of the femoral.   To say that there was any actual danger of a fatal termination, through a sudden escape of arterial blood from a vessel of the size of that wounded, is too absurd to require serious refutation—the *expected* fatal termination was part of the erroneous diagnosis which led to the performance of a severe, dangerous, and unnecessary operation.

Mr. Liston, by the publication of this case and the elaborate manner in which he has endeavoured to justify his treatment of it, has fairly challenged the comments which have been made upon this paper.   In the imperfect and uncertain state of our art, ample allowance must be made for errors, too often unavoidable, in diagnosis and treatment.   But what we feel bound to censure is the attempt to gloss over the mistakes of practice, and, after the post-mortem examination has exposed the error and revealed the true nature of the case, to maintain the necessity for a proceeding erroneously adopted.   If the example were followed, much evil might result, and it is a poor compliment to the intelligent race of medical men of the present day to presume that they cannot penetrate the veil of bad pathology and special pleading by which the necessity for the operation is defended.   We sincerely regret that so eminent an operating surgeon should by such means mar the reputation he evinces so anxious a desire to support.

XIII. A CASE IN WHICH A LARGE TUMOUR WAS DEVELOPED IN THE SUBSTANCE OF THE FIFTH NERVE AND ITS GANGLION. By *James Dixon*, Esq.

This paper may be considered as a supplement to one published in the preceding number of the Transactions (vide our Number for April, 1846, p. 438), consisting of an account of the morbid changes in the brain of the patient, a woman aged 59, who had paralysis of the fifth nerve on the left side and had lost the left eye. The parts supplied by the facial nerve on the same side became paralysed, there was total deafness of the left ear and, after attacks of giddiness and loss of memory, she died.   The temporal muscle on the right side was of a natural appearance, whilst the left one was so wasted as hardly to be recognised.   Every thing was healthy in the brain and nerves on the right side. To the left of the pons varolii was an oval mass, slightly attached to the encephalon at the junction of the pons and crus cerebelli, and extending forwards, beneath the dura mater as far as the foramen lacerum orbitale. This tumour, from which the three divisions of the fifth nerve emerged, had hollowed out for itself an irregular pit in the concavity of the great wing of the sphenoid bone. The morbid growth proved to be a degeneration of the trunk of the 5th nerve and Casserian ganglion. The chief alteration in the eye was adhesion

of the iris to the lens, which was of a pale yellow and opaque at the centre.   Mr. Dixon remarks :

"It would be absurd, from a single case like the present, to generalize upon the influence of different nerves in nutrition ; but it will be observed that there was here no atrophy of the eye-ball, although the Casserian ganglion, and the whole trunk of the fifth nerve between that body and the brain had been replaced by an adventitious growth."—P. 134.

XIV. On the Capacity of the Lungs, and on the Respiratory Functions, with a View of establishing a precise and easy Method of detecting Disease by the Spirometer. By *John Hutchinson*, Surgeon.

Mr. Hutchinson commences by reviewing the speculations and opinions of those who have preceded him in treating of the mechanism and functions of the lungs.   He begins with Hippocrates, who reckoned air one of the elements of life; attributes to Galen a recognition of the fact that the thorax distending draws in the air, and that the lungs follow the dilatations of the chest, and sums up the opinions which, during 1500 years, from Galen to Robert Boyle, were received by different naturalists and philosophers, under the three following heads :

"First,—' That by the dilatations of the chest, the contiguous air is thrust away, and that, pressing upon the next air to it, and so onwards, the propulsion is continued till the air is ' *driven* into the lungs ' and so dilates them.'
"Second,—That the chest is like to a pair of common bellows, ' which becomes to be filled because it is dilated.'
"Third,—' That they are like a bladder, which is therefore dilated because it is filled.' "—P. 139.

Torricelli, the pupil of Galileo, discovered in 1643 the law of atmospheric pressure, and explained why air enters the lungs in inspiration. Fabricius described the action and properties of the diaphragm, Malpighi and John Templer, the structure of the lungs.   Borelli, Juvin, and Dr. James Keill in succession made admeasurements of the quantity of air expired from the lungs ; and in 1757, Black, Rutherford, Lavoisier, Priestley and Scheele, by discovering the composition of the atmosphere and of the respired air, threw much light upon the chemistry of respiration.
The author, having adverted to the propriety of considering respiration under two grand heads, as chemical, and mechanical ; directs our attention to the latter of these.
He recognises in the varying capacities of the chest—" first, extreme expansion or enlargement ; second, extreme contraction or diminution ; and third, an intermediate condition, an ordinary state."
We proceed to an explanation of the terms Residual, Reserve, Breathing, Complemental Air and Vital Capacity, to each of which he has affixed a specific meaning, likely henceforth to be always associated with it.
Residual air then is that air which remains in the lungs after the most complete expiration that it is in the power of the individual to make.
Reserve air is the difference between the quantity remaining after easy or ordinary expiration, and the residual air.

Breathing air is that quantity which enters and leaves the chest in ordinary respiration.

Complemental air is the difference between the quantity of air contained in the chest after the most forced, and that contained after ordinary inspiration.

The vital capacity is made up of the reserve, breathing, and complemental airs together, or, which is the same thing, it is the difference between the aerial contents of the chest during extreme expansion, and during the most forcible contraction. In all cases the air is measured at 60° Fahr.

The residual air is independent of the will, and always present in the chest. The reserve air, to use a simile, is a tenant at will. The breathing air is constantly passing in and out. The complemental air is seldom in the chest and never is so long.

We pass over the details of particular measurements of these several quantities of air and give only the general results with Mr. Hutchinson's pertinent remark upon them.

> " Residual air ranges from   -   40 to   260 cubic inches.
>   Reserve air   -   -   -   77 to   170   do.
>   Breathing air   -   -   -   3 to   100   do.
>   Complemental air   -   - 119 to   200   do.
>   Vital capacity   -   -   - 100 to   300   do.

" This forms the basis of our present knowledge, from which I can only gather that observers differ. It is possible that all these experiments may be correct; but allowing this, we cannot thence definitively solve the problem respecting the different quantities of air passing through the lungs.—P. 150.

It is subsequently stated that these apparent discrepancies arise from the absence of all correction for temperature and for difference of sex, height, weight, or age of the individuals examined.

The object of Mr. Hutchinson's researches being, by means of his instrument called the Spirometer, to ascertain the vital capacity of different individuals, in order to derive indications with respect to their health; it is necessary, in the first instance, to determine all the circumstances affecting its quantity, or the laws to which it is subject. Now this vital capacity is disturbed directly, or modified by the height, weight, and age of the person examined, as well as by disease.

In reference to the influence of the first of these, Mr. Hutchinson, from experiments made on nearly 2000 individuals, has deduced the law, that the vital capacity increases by 8 cubic inches for every additional inch of height for all statures between five and six feet; the average vital capacity for men of five feet being 174 cubic inches; or the bulk of air which at 60° has that measurement.

The effect of a considerable excess of weight beyond what may be considered to correspond to the stature of the individual is to diminish the vital capacity which is normal for that stature. Now the weights of 2600 men having been taken, it was found that 120 lbs. being the average of those who were 5 feet 1 inch high, 174 lbs. was that of men of 5 feet 11 inches. A near approximation then to the average normal weight for any intermediate height may be obtained by adding 5.4 lbs. to the former of these weights for each additional inch of height. It does not appear that

a reduction of weight below this normal standard produces any alteration in the vital capacity; and it seems that we may have an addition of weight to the extent of about seven per cent. beyond these averages without affecting it. But beyond this, the vital capacity will diminish at the rate of one cubic inch per lb. up to 35 lbs. weight of increase as a consequence of the impediments to respiration occasioned by corpulency. And for still greater weights a greater decrement of vital capacity per lb. of weight must probably be allowed.

As regards the effect of age, we find that vital capacity is increased from 15 to 35 years of age, and from 35 to 65 years of age it is decreased in the progression of 19, 11, and 13 cubic inches for the several successive decades.

" To conclude this portion of the enquiry, it may be added, that the healthy vital capacity is chiefly affected by three circumstances—height, weight, and age.

" By height, an increase of 8 cubic inches at 60° for every inch of height.

" By weight (at the height of 5 feet 6 inches), the vital capacity is not affected under 161 lbs., or 11½ stone; but above this point it diminishes the vital capacity in the relation of 1 cubic inch per lb. up to 196 lbs., or 14 stone. And at other heights, between 5 feet 1 inch and 5 feet 11 inches, ten per cent. may be added to the mean height, before we allow the weight to affect the vital capacity in the relation of 1 cubic inch per lb.

" By age (from 35 to 65), a decrease of rather more than 1 cubic inch per year."—P. 174.

It is a curious and interesting result of numerous experiments, made by means of plaster casts of the thoracic cavity after death and subsequent to the removal of the heart and lungs, that the absolute capacity of the chest bears no fixed relation to the vital capacity. The conclusion that universal adhesions of the opposed surfaces of the pleuræ, do not diminish the vital capacity, is, if it be safe to trust to a single observation, an important step in knowledge, contrary as it is to all preconceived ideas on the subject.

A study of the phenomena attendant on respiration leads our author to the belief that the *ordinary breathing* movement is abdominal, caused by the descent of the diaphragm pushing out the abdominal viscera; that the *deep inspiratory* movement is not so, but quite the contrary; in this case, the sternum advances while the abdomen recedes; the chief enlargement of the thoracic cavity in deep inspiration being made by the ribs and not by the diaphragm.

In females, however, the ordinary breathing is thoracic, very little abdominal movement being perceptible.

The following paragraphs embody the chief inferences drawn from observations too numerous for us even to sketch in detail.

" Having now given a brief outline of the respiratory movements, I must recall the attention to the vital capacity.

" We have seen that this corresponds with the height, and not with the absolute capacity of the thorax: why is this the case? I confess myself as much at a loss to explain it as I was the first day I commenced the research. I believe the vital capacity is mathematically commensurate with the range of mobility or thoracic movement; but why the mobility increases in arithmetical progression with height, which it appears is chiefly dependent on the length of the limbs, and not on the length of the trunk of the body, I am incapable of explaining. So

completely is mobility, and consequently the vital capacity, affected by nature, that a man will breathe in different positions different quantities of air: thus, standing, I blow 260 cubic inches; sitting, 255 ; and when recumbent, (supine) 230, (prone) 220 ; position making a difference of 40 cubic inches."—P. 197.

The question of the relative force of the inspiration and expiration has received the attention of Mr. Hutchinson, and by means of an instrument fitted to the nose, and so contrived that he could measure by a column of mercury the suction power of the former, and the forcing power of the latter, he has shown that the opinion previously entertained is entirely erroneous. He remarks upon his results set forth in a tabular form : " It will be observed that the figures on each side of the same word differ in their value, the expiratory side ranging about one-third higher, because the power *manifested* (I do *not* mean power exerted) by these muscular efforts varies in this relation. Thus, a man capable of elevating by his inspiratory muscles 3·5 inches of mercury, may be expected to raise by his expiratory muscles 4·5 inches." He says, further on, "I am inclined to look for the first intimation of debility from disease in the inspiratory effort, and not in the expiratory ; the expiratory muscular effort may, however, be taken as a test of health when it exceeds the inspiratory."

The excess of the force of expiration over that of inspiration is attributed to the elasticity of the ribs and lungs co-operating with the former but opposing the latter power. Experiments were made to determine the amount of this force of elasticity, but our space prohibits our entering into a detail of them : they seem to show that it is very considerable.

There are some observations regarding the effects of decussating, diametric and oblique power which are in the main erroneous, as is the inference deduced from them to the effect that, every external intercostal muscular lamella can raise a rib independently of the lamella next above it. This matter, however, has little bearing on the general object of the paper, and like some others subsequently touched upon may be deemed episodical, and might perhaps have been reserved with advantage for a separate essay.

Mr. Hutchinson has, as we have seen, given guides for the determination of the healthy vital capacity in any individual as influenced by height, weight, and age ; we are thus furnished with a standard of comparison, so that when, by means of the Spirometer, the actual vital capacity is ascertained, we can at once recognise the existence and the amount of any deficiency. In a table, in which are given the results of an examination of many phthisical patients, it is shown that, even in an early stage, the indications of the instrument are very decided, and important. It must be remarked, however, that the deficiency of vital capacity indicated by the instrument, depending as Mr. Hutchinson has shown upon diminished mobility of the thoracic walls, will not point out the specific disease. So far from this that his method has been found available by the author for the detection of ailments which might be supposed to be little capable of affecting the respiration, as for instance hernia, and ruptured tympanum. It was, however, the mercurial instrument before spoken of for measuring the force of inspiration that led to the discovery of these affections.

The Spirometer consists essentially of a cylinder closed at one extremity, inverted in another similarly formed, but of somewhat larger diameter and filled with water. Air is blown, by means of a pipe or tube, through the

bottom of the larger, so as to come within the mouth of the lesser, and as this is exactly counterpoised by weights suspended from above, its elevation will indicate the quantity of air introduced reduced to the temperature of the water by its passage through it, and sustaining only the pressure of the surrounding atmosphere. In principle, the Spirometer exactly resembles a gasometer, the form however is somewhat modified, and the dimensions are vastly reduced in the former.

In using the instrument, the person whose vital capacity is to be ascertained should be in a standing posture, and after inspiring as deeply as possible, should make as long-continued an expiration as he can through the tube, which is furnished with a proper mouth-piece. This process is to be gone through three times consecutively, the instrument being intermediately adjusted, and the greatest of the three results should be recorded as the correct one. The repetition of the trial is necessary in order to exclude the errors which may easily affect the conclusion from a single one. The posture is important, at least it appears from what has gone before, that if a person can only use the instrument while sitting or lying, allowance must be made for that circumstance. The deficiency of vital capacity being ascertained ; the inference that disease exists somewhere seems established with a painful certainty. The lungs we conceive will be found in fault in the vast majority of instances; and as there is no one of their diseases which is apt to have so long a period of latency, and afterwards to be so obscure, and doubtful in its progress as phthisis often is, it is especially upon this disease that the Spirometer is calculated to throw light. Subsequent experience, in two or three cases, mentioned in the paper, verified the melancholy anticipations of the author, where consumption had not previously been suspected. Farther experience of the reliance to be placed upon this method of examination will, in all probability, constitute the Spirometer a valuable instrument in the hands of medical men. Our best ground of hope of combatting phthisis successfully is found in our being enabled to recognise it at its commencement with certainty, so that we may attack it early and act against it with earnestness. Now the Spirometer promises to give us this advantage, and we shall watch its future use in diagnosis with much interest, and hopefulness.

No one can read Mr. Hutchinson's Essay without at once perceiving that he has not spared time, study, labour, or expense, in his endeavour to give completeness to his researches upon the subject of respiration. He has multiplied experiments to so large an extent as to defy distrust in the general accuracy of his conclusions. He has incidentally, and collaterally to his main object, established many curious and interesting facts in connexion with the powers and mechanism by which the process of breathing is carried on; the influences and derangements to which it is liable. He has made one direct application of the laws which he has discovered to the uses of practical medicine, at the same time that he has improved our knowledge of the mechanical conditions of respiration as a whole. Whether we consider the importance of the function which he has investigated, the probable advantages arising from his discovery, or the manner in which his researches have been carried on, we think him well entitled to the best thanks of his professional brethren.

XV. HYDATID CYST, EITHER ORIGINATING IN, OR PRESSING UPON, THE PROSTATE GLAND. By *George Lowdell,* late House Surgeon to the Sussex County Hospital.

In this case, retention of urine and death were produced by a large hydatid cyst, which pressed upon the prostate and displaced the urethra. There is an appendix to the paper containing the particulars of another fatal case of retention of urine, occasioned by a cyst containing hydatids developed in the pelvis, communicated to the Society by Mr. Curling. In both instances there were hydatids in other parts of the body. The rarity of hydatid cysts in the pelvis, and their serious effects, render these cases well deserving of record.

XVI. CASES OF VARICOCELE TREATED BY PRESSURE, WITH OBSERVA-TIONS. By *T. B. Curling,* Lecturer on Surgery, and Assistant-Surgeon at the London Hospital.

Mr. Curling states that, "three years ago, a case of varicocele, cured by the application of pressure to the spermatic veins, came under my notice, and being struck with the peculiar adaptation of this plan of treatment, to counteract the injurious effects of the dilated veins, I determined to give it a trial. In a work on the Diseases of the Testis, which appeared a few weeks afterwards," he stated the object of this method of treatment to be " the maintenance, whilst the patient is in the upright position, of such a degree of pressure on the spermatic veins as may be sufficient to relieve them from the superincumbent weight of the blood, without at the same time endangering the integrity of the testis, by obstructing the spermatic artery, and without causing so much uneasiness as to render the remedy as painful as, or more difficult to be borne than, the disease. This pressure must be continued a sufficient time to enable the coats of the vessels to return to their natural dimensions, and to acquire strength to carry on the circulation. When this is effected, the patient is cured." He also remarked, " I look forward with no slight interest to the result of further trials of a remedy which seems to me to be based on sound views of the pathology of the disease," and that this "plan appears to be particularly applicable to cases of varicocele in young persons, whose reparative powers would be sufficient to restore the veins, when relieved of pressure, to a healthy state." Since these observations were written, Mr. Curling informs us that he has treated many cases of varicocele by pressure; and, as a sufficient period has elapsed to enable him to form a just opinion of the value of this plan of treatment, and of its advantages over other methods, he here submits the results of his experience in the management of this complaint to the consideration of the Fellows of the Society. Mr. Curling gives the particulars of three cases, in which firm, steady, and continued pressure on the spermatic veins at the external abdominal ring succeeded in curing the disease. They seem satisfactory examples of permanent benefit derived from the treatment pursued. Mr. Curling observes that, to these cases of cure by pressure, he could add two other cases, if necessary, to establish the value and utility of this plan of

treatment, besides the case mentioned in his work on the Diseases of the Testis, and another case, of a gentleman aged 27, who was affected with a rapidly increasing varicocele, for which he had worn a truss two months with benefit, when he quitted this country for Canada. He returned to England at the expiration of three years with the varicocele quite cured. He had left off the truss after wearing it fifteen months.

Mr. Curling states—

"In the above cases, the dilatation of the veins had taken place at a comparatively early period of life, was not excessive, nor, in two of them, of long duration, but was productive of more or less inconvenience and uneasiness, which could be only partially, or scarcely at all, remedied by the suspender ; they were precisely the cases in which it was presumed that pressure, by relieving the veins of the superincumbent weight of the blood, would enable their coats to recover their proper size and tone.

"The same method of treatment has been applied to several other cases of varicocele, of a like character to the above, in some of which, after the patients had derived so much benefit from it, that hope was entertained of a permanent cure being effected, they ceased to remain under my observation ; and in others, though the treatment had been hitherto satisfactory, the painful symptoms having been entirely relieved, a sufficient period had not elapsed to enable me to judge of the ultimate result. In two of these cases, the relief afforded by the truss to the distressing symptoms occasionally attendant on the disease, was so immediate and so great, that I am led to give them in detail."—P. 263.

We regret that the space we have already devoted to our notice of this volume does not admit of our quoting these two interesting cases. We can only observe that they show, in a forcible manner, the great benefit that may be derived from the application of pressure in painful cases of this disease. Our author remarks—

"Patients afflicted with varicocele in early life, often labour under a degree of mental distress very much out of proportion to the actual disease. These hypochondriacal symptoms are partly owing to the dyspepsia so commonly co-existing with this complaint, and partly to an apprehension, by no means un-founded, of the disease impairing the nutrition of one of those organs which exercise a marked influence on the characters of the sex. By appropriate general treatment and encouraging advice, combined with local treatment, the painful feelings alluded to may generally be removed. In other instances the uneasi-ness in the testis and spermatic cord, and even in the loins, is so great as to produce much real suffering, and to prevent the person affected from making any kind of exertion. In Case 4, which was an instance of this kind, the patient was prepared to submit to an operation, had I recommended one, but the benefit derived from the truss was sufficient to render so severe an alternative unneces-sary. In this case the distention of the veins was so slight, that I think the relief obtained may be in some measure due to the pressure made on the spermatic nerves."—P. 265.

Mr. Curling believes that but little attention is paid to constitutional treatment in varicocele, "which is commonly regarded as exclusively a local disease. In the class of cases in which the benefit derived from pressure is most apparent, the subjects of the disease are persons between 18 and 30 years of age, of weak frame and constitution, and subject to dyspepsia, and whose venous system and circulation are feeble, as is evinced by the large size of the superficial veins, particularly in the lower extremities,

paleness of the countenance, and cold hands and feet. In these cases, the operation of local remedies may be aided materially by general treatment, such as the exhibition of steel and quinine, a nutritious diet, sea-bathing, and similar measures, calculated to improve the tone of the system." Mr. Curling notices the liability of the complaint to return unless the causes producing it are avoided, and for this reason he advises the use of the truss for some time after all symptoms of the affection are removed. He adverts to another class of cases in which the application of pressure is capable of giving considerable relief though not of curing the disease. They are cases occurring at a somewhat advanced period of life, with which most practitioners are familiar. In these cases the application of pressure " not only removes the slight uneasiness which exists when the veins are pendent, but also counteracts the tendency to further dilatation, though the enlargement is too great to admit of the vessels being reduced to their former size." Our author adds—

" From these observations it will appear that I consider the treatment by pressure to be applicable either for the cure or relief of the majority of cases of varicocle occurring in practice. Certainly in all those cases in which tolerably firm pressure, with the fingers, at the abdominal ring, removes the sense of weight and uneasiness along the cord, this plan may be tried with every prospect of a beneficial result; and its simplicity, freedom from all risk, and efficiency, in my opinion, render it superior to every other mode of treatment that has hitherto been resorted to."—P. 267.

In all the cases of varicocele which Mr. Curling has treated by pressure, he has employed the moc-main lever truss, which seems better adapted to make the necessary pressure on the spermatic veins at the external abdominal ring than any other instrument that he knows of. It is not liable to shift, and what is very important, the degree of pressure can easily be regulated by the patient. He has used it with success in cases where the patient has tried other trusses without obtaining relief.

" The truss should be applied so as to make rather firm pressure: it often happens that, though worn with comfort after being adjusted in the morning, towards the after part of the day it begins to produce uneasiness. When this is the case, the pressure may be diminished. In general, the truss need be worn only during the day, though in some instances I have thought it advisable to recommend its use during the night also. Thus in one case the patient suffered uneasiness in lying on the side affected, and was able to pass a better night on wearing the truss. When the scrotum is unusually pendulous, or when the veins are very long, and form a plexus of any size, I advise the addition of the silk net suspender, which may be readily adjusted to the truss."—P. 268.

There are few practitioners who have not been frequently disappointed with the methods of treatment ordinarily resorted to in cases of varicocele. In early life, support often fails in giving relief and preventing the progress of the disease and wasting of the testicle; and operations on the veins cannot be performed without risk to the patient. If, therefore, pressure on the veins be capable of affording all the benefit represented in this paper, the practice must be regarded as a valuable improvement in surgery. At first sight it appears opposed to the received notions of the indications to be fulfilled in the treatment of varicocele, but the modus operandi has been satisfactorily explained by Mr. Curling, and our preconceived theories must yield to the fruits of experience.

XVII. On a particular Derangement of the Structure of the Spleen. By *J. B. S. Jackson*, M.D., Boston, U.S.A. Communicated (with some Remarks and Comments) by *Thomas Hodgkin*, M.D.

In this paper, Dr. Hodgkin calls attention to a partial, well-defined alteration in the texture of the spleen, described by him in the 17th volume of the Transactions, which he was induced to attribute to the extravasation of blood caused by local injury, but which Rokitanski regards as one of the effects of endocarditis, and as produced by the poisoned condition of the blood. He there gives the substance of some communications from Dr. Jackson of Boston, containing his observations on this derangement. As neither Dr. Hodgkin nor Dr. Jackson seem to have arrived at any satisfactory conclusion on the subject, we shall not dwell further on this paper, and we think that one containing views as yet crude and imperfect might have been omitted without impairing the value of the Transactions.

XVIII. On a Luminous Appearance of the Human Eye, and its Application to the Detection of Disease of the Retina and Posterior Part of the Eye. By *William Cumming*, late House-Surgeon to the London Hospital.

Mr. Cumming, after giving some extracts from the works of Beer and Tyrrel, pointing out the cases in which reflection from the posterior part of the human eye has been observed, states that he has not found or heard of any author who has described a reflection from the posterior part of the perfectly-formed and healthy eye of the human subject. The object of this paper is to show " that the healthy human eye is equally, or nearly equally, luminous as the eye of the cat, dog, &c., when observed under favourable circumstances, and the application of the abnormal appearance, or want of, this luminosity, to the detection of changes in the retina and posterior part of the eye."

Mr. Cumming states that the reflection may be seen in the following manner:—

"Let the person whose eye is to be examined be placed at the distance of ten or twelve feet from a gas or other bright light; the rays of light must fall directly on his face; all rays passing laterally of his head must be intercepted by a screen, placed half way between the light and the eye examined. If the reflection be bright, it will be at once seen from any spot between the light and the screen.

" The following observations were made in two rooms; in one of which was a gas-light, the other completely darkened. The person whose eye was to be viewed was placed in the dark room, five feet from a half-closed door opening into this room; he directly faced the light, also at the distance of four or five feet from the door.

" The appearance of the reflection was in most cases extremely brilliant when seen from a position between the door and light. In some it was at once obvious with the door wide open; in others it was seen with great difficulty, and not till every ray of light passing to the side of the iris was carefully intercepted by the door on one side and the hand or a book on the other. The reflection

was always seen much more readily and brilliantly when the eye was turned slightly to the side, and the rays of light passed through the pupil obliquely. On passing to the other side of the door, the luminosity was seen with greater difficulty. In this position it is necessary to have the eye turned to the side, to exclude all rays by the hand except those passing directly to the eye. In this way the reflection may be seen distinctly at the distance of eight inches.

" In the majority of cases, however, it may be seen as follows: Let the person under examination sit or stand eight or ten feet from a gas-light, looking a little to the side; standing near the gas-light, we have only to approach as near as possible to the direct line between it and the eye to be viewed, at once to see the reflection. Or, in a dark room, a candle being placed four or five feet from the eye, if we approach the direct line between them we shall be able at once to see it in many cases.   If solar light be admitted through a nearly-closed shutter into a dark room, the luminosity may be seen when the pupil is tolerably dilated, the patient standing five or six feet from the aperture, and the observer occupying the position before indicated.

" These, then, are the circumstances necessary for seeing the luminosity. a. That the eye must be at some distance from the source of light; the distance being greater in proportion to the intensity. b. That the rays of light diffused around the patient (and sometimes around the light itself) should be excluded. c. That the observer should occupy a position as near as possible to the direct line between the source of light and the eye examined; hence it is sometimes necessary for the observer to stand obliquely, that his eye may approach nearer to the direct line.

" The appearance of the reflection itself not only varies much in colour and intensity in different persons, but also from the circumstances under which it is seen, viz. the greater or less intensity of light, the position of the eye examined, and the distance at which it is viewed.

" When the reflection is seen under the influence of a dim light, as that from a candle, or a few solar rays, a red lurid glare, like that from a dull coal fire, is observed, evidently proceeding from the bottom of the eye, and, though not distinctly concave, yet conveying the idea of concavity. The character of the reflection thus seen by a faint light, at the distance of two or three feet, is very uniform, and does not present much variety of tint.

" When the eye receives rays from a good bright light ten feet distant, and we stand near the light, the reflection is then seen extremely brilliant; presenting a fine metallic lustre, and varying from a bright silver or golden to a decided red tint: the latter being the more usual colour. While viewing the reflection at this distance, it sometimes undergoes a distinct change, suddenly altering from a copper or red colour, to a silver tint: this happens sometimes in consequence of a slight movement of the eye, but not unfrequently is observed without any movement having taken place.

" Although the reflection is more readily seen in an eye with a large pupil, its lustre does not depend upon this circumstance. In two eyes with pupils of equal diameter, the intensity of the reflection frequently varied greatly. In one case, in which the reflection was very dusky in appearance, and the pupil small, atropine was dropped into the eye. I then observed that, though the extent of luminosity was increased, it still retained the same dusky hue. The greater facility with which the reflection is seen when the eye is directed slightly away from the light, appears to depend on the more patulous condition of the pupil.

" On approaching within a few inches of the eye, the reflection is not visible, for, before our eye can be brought within range of the reflected rays, the incident rays of light are excluded. On placing before the eye examined, a black card with an aperture the size of the iris, the intensity of the reflection was observed to be somewhat diminished.

" In cases in which the lens had been removed, the reflection was indistinct at a distance, but was rendered somewhat clearer by the aid of a double convex

lens placed before the eye examined; but at two or three feet distant, the reflection was as obvious as in cases in which the lens was present.

"Among the cases I have examined, I have recorded indiscriminately the appearance of the luminosity in twenty persons with good and perfect vision, whose ages varied from a few months to sixty years. In sixteen cases the reflection was bright and very evident; in four, faint, and seen with difficulty; and in one it was not seen at all; in the last case, the pupils remained small in the shade. If these observations are confirmed by other observers, we may say that the reflection ought to be seen in every healthy eye with a good-sized pupil."— P. 287.

Mr. Cumming next endeavours to show the source or cause of the reflection, which he ascribes to the choroid with its pigment. But, while he regards this as the principal reflecting structure, he believes that its effect is increased by the light returned from the retina and concavity of the hyaloid body. The reflection from these structures would be considerably increased in brilliancy, from the concentrating influence of the concave shape of the retina, and the focal distance of the lens. Our author makes some interesting observations on cat's-eye-amaurosis, and is inclined to think that two different things have been confused under this name—that, in the majority of cases in which the normal luminosity of the eye was observed, the reflection exactly corresponded with that described in this paper; and that the others, in which red vessels and a margin to the reflecting surface were seen, were cases of deposit of lymph in the retina. He states—

"If this be a correct analysis of these cases, the mystery that hangs about cat's-eye-amaurosis vanishes; the first class of cases were cases of amaurosis arising from cerebral and other causes, in which, the retina and choroid being perfect, the normal reflection from them was seen; the second division consists of cases of deposit of lymph or other substances in or about the retina. It is, then, at once evident that a mere luminosity of the eye will in no case be a sign of altered condition. It will be necessary first to become acquainted with the normal reflection—its modifications in different lights and positions, and at various periods of life, and in persons of a dark or fair skin; then by the detection of an altered condition of such reflection (and assisted in many cases by contrast with the opposite eye), or by its entire absence, we possess a means of diagnosis in retinal and choroidal disease."—P. 293.

In confirmation of its value, as a means of detecting changes in the retina, Mr. Cumming relates four cases. The first was one of imperfect vision of the left eye. The probability was "that it was an affection of the retina; but there was no other sign on which to rely but the statement of the patient with regard to the appearance of scintillations. The pupils were equally black, and the appearance of the eye normal; by this mode of examination it was rendered clear that the left half of the retina had undergone considerable change, and probably its power of transmitting the influence of rays onwards to the cerebrum." The other three cases are equally interesting, as showing the utility of this mode of detecting alteration in the retina. The fourth was one of cerebral amaurosis in which the reflection was perfect.

This is a communication of considerable value and interest, and highly creditable to the author. In establishing the fact of the normal luminosity

of the eye, Mr. Cumming has discovered a mode of discriminating diseases of the posterior part of the eye which must prove of great service in many cases of difficulty.

XIX. ACCOUNT OF A CASE IN WHICH AN ABSCESS IN THE NECK COMMUNICATED BY AN ULCERATED OPENING WITH THE ARCH OF THE AORTA, AND IN WHICH THE HÆMORRHAGE DID NOT PROVE FATAL IN LESS THAN FORTY-EIGHT HOURS. By *George Busk*, Surgeon of the Hospital Ship " Dreadnought."

The title of this paper is liable to mislead. The abscess should have been termed *fistulous*. The patient was a woman about thirty-five years of age. An abscess in the neck, originating apparently in an enlarged gland, burst about four months before her death, and had continued to discharge matter ever since. Mr. Busk remarks:

"The case is chiefly interesting as affording an unequivocal instance of a communication being formed between the cavity of an abscess and a large arterial trunk, in consequence of an ulcerative process being set up from without, and going on to produce such a thinning of the arterial tunics, that they finally give way under the impetus of the blood. It is evident that, had this communication been set up at an earlier period, and before the bursting of the abscess, it would have been very difficult, if not impossible, at that stage, to have avoided mistaking the abscess for an aneurism: for when, towards the end, the orifice was closed, and the cavity of the abscess filled with blood, such a pulsation was caused, as very strongly to simulate that presented by an aneurismal tumour."—P. 301.

The extension of ulceration from a *fistulous* abscess to a larger arterial trunk, as in this case, is not so rare an event as Mr. Busk supposes. The communication, however, of a chronic abscess with a large artery by ulceration so as to simulate aneurism is extremely rare, so rare, indeed, that we know of no unequivocal case on record.

XX. ON THE RELATION BETWEEN THE CONSTITUENTS OF THE FOOD AND THE SYSTEMS OF ANIMALS. By *R. D. Thomson*, M.D.

The author, in the present paper, gives the results of experiments on the amount of wax and oil contained in the food of two cows, as compared with the quantity of both of these found in the milk and dung. The details have been already printed in other treatises; to which he refers in the one now before us.

As it is evident then, that the present essay is itself an epitome of other works, the business of analysing it becomes more difficult. The first table informs us of the fact that cows taking certain food or foods, grass being one of them, give out much less oil and wax in their butter and dung than has been supplied to them in their food. That, on the contrary, when fed on other substances, hay being always one of them, they give out more oil and wax in their butter and dung than they have received in their food. We have no explanation offered of the cause of this difference, but an inference drawn that the oil in the food alone is not

adequate to the production of the oily matter in the cow ; an inference which seems deduced from the latter to the exclusion of the former result just mentioned.

In another experiment, the carbon, hydrogen, nitrogen, and oxygen contained in the solid parts of the food and dung of a stall-fed cow were separately ascertained, and the difference estimated as the consumption of the animal. From the quantity of nitrogen thus consumed is deduced the amount of nitrogenous or nutritive matter assimilated by the animal, the rest being considered as forming the calorifiant portion of the food absorbed, and it is found that the former is to the latter as 1·560 to 13·100, or as 1 to 8⅓ very nearly. Milk, as stated by the author, contains one part of nutritive to two parts of calorifiant constituents. Now, these may probably be taken as the extreme limits of the proportions which should be borne by the quantities of these respective principles when mixed in the diet. The growth of the young animal, and the demands arising from exercise of the muscular system in all requiring an increase, a state of rest admitting a diminished proportion of nutritive material.

Tables follow exhibiting the per centage of albuminous matters in a number of articles of domestic use as they occur in commerce, and also the relation of nutritive to calorifiant matter in many important items of diet. These are interesting and valuable, but we cannot extract, and it would be unfair to curtail them. Another table gives the result that grass affords the best products when given to milch cows, although the animals receive less nitrogen when fed upon it than in many other cases ; and the paper concludes with the remark that, the preceding observations lead to an extensive field of experiment and deductions of a highly practical nature, and may assist in indicating the direction in which the physician should pursue his enquiries when studying the laws by which the animal system is to be retained in a state of health. In all this we concur, considering the whole essay as offering some useful suggestions rather than pointing out any principles which are deserving of full confidence.

We do not much like the tone of this paper ; there is the appearance of putting too much on the author's own experiments, and referring too little to any other sources of knowledge. Thus, the author, having tabulated the results of feeding two cows on different articles, writes thus, " we may infer from these results, that grass affords the best products, because the nutritive and calorifiant constituents are combined in this form of food in the most advantageous relations." Now, if the circumstance to be explained were a well-established fact, some value might attach to the proffered explanation ; but, as compared with the vast accumulated experience of dairymen and others, how inadequate is this petty experiment to show us what kind of food causes cows to yield most milk and butter. As the case stands, we have merely a conjectural explanation of an inference founded on insufficient observation. We say conjectural explanation, for the table only shows that the products in milk and butter do not increase with the quantity of nitrogen in the food.

At page 337 we have the following extraordinary passages :

" From this table, likewise, we infer that, as nature has provided milk for the support of the infant mammalia, the constitution of their food should always be formed on the same model. Hence we learn that milk, in some form or other, is

the true food of children, and that the use of arrow-root, or any of the members of the starchy class, where the relation of the nutritive to calorifiant matter is as 1 to 26 instead of being as 1 to 2, by an animal placed in the circumstances of a human infant, is opposed to the principles unfolded by the preceding Table."

Now, how can a Table, which shows only the proportions between nutritive and calorifiant matters in milk, and several other alimentary substances, furnish the inference that the constitution of infant food should always be formed on the same model ?   Reflection on what we observe in Nature may teach us this, but Dr. Thomson's Table never can, albeit a good Table and teaching us an important condition existing in this model. We opine, too, that the discovery that milk is the true food of children has a date somewhat anterior to that of the construction of the Table in question.   The Table unfolds no principles, but shows that the starches differ in an important particular of their constitution from the matters contained in milk.   It is certain, therefore, that the starches alone cannot form an analagous diet ; it is probable that the use of them as substitutes is not advantageous.   We give the author all credit for the skill and labour displayed in his chemical researches, but wish to remind him, in conclusion, that, for the promotion of knowledge, legitimate inferences are as much needed as trustworthy experiments.

We here close our notice of this volume of the Transactions, which, with a few exceptions, fully sustains the high reputation of the Society. Often as we have had occasion to express our approbation of these annual volumes, we have seldom performed the task with greater pleasure than in the present instance.

I. LECTURES ON SUBJECTS CONNECTED WITH CLINICAL MEDICINE, COMPRISING DISEASES OF THE HEART.   By *P. M. Latham*, M.D., Physician Extraordinary to the Queen, and late Physician of St. Bartholomew's Hospital.   Vol. II. pp. 419.   London : Longman and Co., 1846.

[Second Notice.]

II. TRAITE DE NOSOGRAPHIE MEDICALE.   Par *J. Bouillaud*, Professeur de Clinique Medicale à la Faculté de Medecine de Paris, &c. &c.   5 Tomes.   8vo. 1846.   Bailliere.

[Second Notice.]

In closing our notice of Dr. Latham's Lectures in our last Number, we intimated our intention of resuming it, so that we might have an opportunity of comparing his sentiments on some of the more important points in the history of Cardiac Diseases with those professed by certain cotemporaneous writers of the French School.   We have selected M. Bouillaud as the representative of Continental Medicine upon this occasion, as being an author of unquestionably no ordinary talent, and one who has devoted his especial attention to the class of disorders in question, and con-

tributed not a little to their more complete elucidation. That he has great and manifold faults as a medical writer cannot be unknown to our readers. In some respects, he is one of the most dangerous guides that could be selected by any young practitioner. Bold, confident, and presumptuous, he labours with most assiduous energy to give currency to his opinions, which all savour of a spirit of extravagance and exaggeration alike in matters of doctrine and in those of practice. He is ever seeking to bring within the domain of arithmetic exactitude the phenomena and course of diseases on the one hand, and to establish with an almost unvarying precision the indications for their therapeutic treatment on the other; as if the former could be weighed in a balance, and the latter could be measured with a plumb-line! Hence it is that he is continually laying down, in the most dogmatic and peremptory tone, certain rules for the detection and cure of most maladies, as if he were describing a mere problem in mathematics to be worked out.

In our former notice of his present work,[*] we exposed the numerous errors and inconsistencies into which he had fallen in discussing the difficult question of Fevers, and we pointed out the pernicious consequences of medical practitioners allowing themselves to be guided by him in the treatment of this truly multiform class of diseases. It is unnecessary to revert to this subject further than to remind our readers that he actually treats of Synocha or sthenic fever under the terms of Angioitis or inflammation of the vascular system; as we shall have occasion to allude, although very briefly, to the history of genuine Arteritis towards the close of the present article. What often adds much to the difficulty of clearly ascertaining his views, is the strange and most perplexing arrangement of diseases which he has chalked out; so that the reader is obliged to be continually turning from one to another of his five bulky volumes to discover the complete history of any one set of diseases. On no subject is this vexatious confusion more annoying than in his account of Diseases of the Heart. The reader must therefore make some allowance, if the extracts, &c., to be given prove less interesting than we could have desired.

The point, at which we had left off in our analysis of Dr. Latham's valuable work, was where he was treating of what he calls "mock Hypertrophy of the Heart;" in other words, of those cases where the actions of this vital organ are so forcible and impetuous as very naturally to suggest the idea of the actual enlargement of its volume, although in truth no such serious change has taken place.

"Impulse of the heart," says he, "taken alone, however great and however extensive it may be, is not a sure physical sign of hypertrophy. Hypertrophy indeed cannot exist without excess of impulse, but excess of impulse can exist without hypertrophy. When the impulse of the heart is excessive, and at the same time its sounds are obtuse, muffled and indistinct, and the præcordial region presents a larger space than natural which is dull to percussion, then the signs of hypertrophy are complete. And hypertrophy so sure and unquestionable was never cured within my experience. But when the impulse of the heart is in excess, and at the same time its sounds are as loud and clear as ever, or louder and clearer still, and the

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[*] *Vide* Medico-Chirurgical Review for July, 1846.

whole præcordial region is quite resonant to percussion save the small space which is naturally dull, then the signs of hypertrophy are incomplete.—P. 249.

It is well known that those of mock or simulated Hypertrophy are especially common in young females affected with Chlorosis. We shall therefore first allude to the cardiac, &c., complications of this very frequent disorder, taking the "Nosographie" as our text-book on the occasion.

After alluding to the aspect and general appearance of chlorotic patients which M. Bouillaud, with his accustomed exaggeration, declares to be invariably so marked and decisive that there never ought to be any room for doubt on the part of the physician, he treats of those diagnostic signs which are furnished by the Auscultation of the Heart and Arteries, and by the exploration of the pulse.

"In every well-marked case," says he, "of Chlorosis or Chloro-anæmia, the carotid and subclavian, sometimes also the crural, arteries give out the continuous blowing, humming, or whistling sound, which I have described at length in my treatise on Diseases of the Heart. Not a day passes without my seeing cases of this sort. It is of the highest importance in a diagnostic and therapeutic point of view to ascertain whether this symptom be present or not; and yet it is strangely neglected by a vast number of medical practitioners. For if this one symptom be present, we may confidently assert, from this circumstance alone, that a chlorotic or anæmic condition of the system is present; and *vice versa*, whenever a patient exhibits the external features of this condition, we may predict that the arterial sound in question will be found."

It is thus described:

"In well-marked Chlorosis may be heard, during the first or systolic action of the heart's movements (au premier temps des mouvements du cœur), a gentle, soft and silky blowing sound; it is most distinct over the orifice of the aorta, and extends along the course of this vessel to where it gives off the carotids and subclavians, with whose continuous murmur it becomes confounded.

"The pulse of chlorotic patients is soft, unresisting, and conveys to the finger, when the artery is gently pressed, a sort of fremitus, with large vibrations, of the column of blood; it may be called the 'chlorotic fremitus,' to distinguish it from other vibratory movements present in certain organic diseases of the heart and blood-vessels. It is exactly similar to the sensation felt by the finger, when this is applied to the canal of the urethra during the act of micturition. The touch alone serves to satisfy us that the artery is not sufficiently full, and that the blood, contained within it, has not its due consistence and density. In cases of simple anæmia, the touch will also enable us to ascertain that the volume or calibre of the vessel is less than in the healthy condition."

According to M. Bouillaud, the Diagnosis of the Cardiac affections, dependent upon an attenuated state of the blood, is yet most imperfectly understood among his fellow-countrymen.

"During the last fifteen years that my attention has been directed in an especial manner to the history of the chlorotic and anæmic maladies, scarcely a day has passed over that I have not seen cases where they have been mistaken, and confounded, either with inflammatory or with organic diseases by the most distinguished physicians of the different schools, which have hitherto disputed the empire of medicine;—some, diagnosticating inflammatory or organic diseases where all was dependent upon a chlorotic condition; while others, on the contrary, have mistaken cases of the most serious and decided organic alteration for those arising from mere impoverishment and attenuation of the circulating fluid.

I do not exaggerate when I affirm that errors of this sort are, in the present day, committed by thousands in different countries of medical Europe. What is the cause of this? Because, in the schools to which we allude, observation has not been directed to the study of the morbid changes of the fluids, of the blood more particularly, and because the exact methods of exploration—those which furnish the physical and characteristic signs of most diseases—have not been duly practised. So true is this that, among the several hundred of pupils who, for some years past have followed my clinical practice, there is not one who, after a few months' assiduous study, has not learned to discriminate with accuracy every case of Chlorosis and Anæmia. All have been astonished to see almost daily patients come into our wards, labouring under affections which had been generally treated by antiphlogistic remedies in consequence of having been mistaken for an inflammatory or congestive malady, or for some organic lesion, such as Aneurism, Hypertrophy of the Heart, Scirrhus or Cancer of the Liver, Spleen, Stomach, &c."

M. Bouillaud then adds :

"The *physical* signs of chlorosis and of chloro-anæmia are so manifest and so sure that for a physician to be unable to distinguish them, must imply on his part an utter ignorance of this branch of semeiology."

He is forced however to admit that, in certain instances, the diagnosis is by no means without some difficulty.

"In those cases, more numerous than is generally believed, where Chlorosis, Anæmia, and their nervous accompaniments, coincide with an organic affection either of the Heart or some other viscus, the physician will be able to recognise the different elements of these complex cases by means of the signs or symptoms proper to each of them. But it must be confessed that these are problems, the solution of which can be made only by those who have been long familiar with all the difficulties of exact clinical medicine, and the number of whom is unfortunately not so large as it ought to be. Those who have followed our practice know full well that examples of the most varied morbid complications are not of unfrequent occurrence, and that, nevertheless, by means of a minute and searching examination, it rarely happens that the diagnosis is not determined with the greatest exactitude. But, if physicians shall still persist in taking Chlorosis for a chronic metritis, or for an asthenia of the generative organs, or for a chronic arteritis,* or for an asthenic condition of the sanguineous system, consisting principally in a diminution of the stimulant properties of the blood, or for a chronic gastritis, or for an aneurism of the Heart, &c. ; if, I say, these and such like errors continue to be committed by medical practitioners, then assuredly the fault lies not so much in the art of diagnosis, as in the culpable ignorance of him who practises it ; *non crimen artis, quod professoris est.*

It will be perceived that, in the above extracts from M. Bouillaud's description of the auscultatory phenomena of Chlorosis and other kindred maladies, he makes the arteries the seat of the continuous humming sound, the " bruit de diable," (as he has called it,) now recognised as one of the surest signs of an anæmic condition of the system, or, perhaps we

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* This strange ætiological doctrine has been much insisted on by the celebrated Italian professor, Tommassini. We exposed the absurdity of the hypothesis in the number of this Journal for January, 1845. M. Bouillaud may well express his astonishment that any sensible man should entertain such an idea ; for there is surely not a shadow of probability that can be adduced in its favour.

should rather say, of a poor and watery state of the blood. The omission of even so much as a passing allusion to any other interpretation of the phenomenon in question is not very creditable either to his professional knowledge or to his professional candour. Let us see what Dr. Latham has said upon the subject. After alluding to the blowing or bellows-sound heard over the heart and the *trajet* of the large arteries in chlorosis, he goes on to remark :—

" Generally accompanying the endocardial and arterial murmur, when it is owing to anæmia or an impoverished blood, there is another sound quite different in kind, and formed neither in the heart nor in the arteries, but traceable to the same pathological condition.

" In following the murmur from the heart along the aorta and the subclavian artery, and then above the clavicle, when you reach the carotid you find a new sound superadded to it. You perceive the bellows-murmur coming and going with distinct whiffs, and keeping time with the systole of the heart in the neck as in the chest; but in the neck you perceive, moreover, *a continuous hum*, like that which reaches the ear from the hollow of a marine shell. This is a thing so evident, that it was noticed and described, and variously speculated upon by those who first practised auscultation. But their speculations were wide of the mark. Whence or how it arose no one could tell, until the sagacity of Dr. Ogier Ward traced it to the veins, and showed it to proceed from the movement of the blood within them.

" The vein, which offers itself most readily to the application of the stethoscope, and admits all the easy experiments which serve to certify the fact, is the internal jugular. Place the instrument upon the neck by the side of the trachea, and pretty close to it, and at the same time rest your finger upon the space between the angle of the jaw and the mastoid process ; and when your ear has caught a continuous humming sound, and listened for a while and made sure of it, then press your finger firmly down upon the vein, and the sound, if it be the true venous murmur, will immediately cease, then raise your finger, and if it be the true venous murmur it will immediately return.

" A little management and address are needed to find this venous murmur, and then keep it within hearing when you have found it. I have seen it found by accident, heard for a minute, and then lost and never heard again. The instrument has been laid carelessly upon the neck, and the murmur has been audible immediately ; and then, in expectation of making it heard to more advantage, the neck has been put upon the stretch, the chin raised, and the head thrown back, or turned far round to the opposite side, whereupon the murmur has ceased. Then the neck has been relaxed, the head brought forward, and the chin inclined towards the sternum, but the murmur has not returned. The truth is, a very free current of blood is essential to the production of the venous murmur. A slight degree of pressure upon the vein will alter its character, and pressure very far short of that which would arrest the current of blood will abolish it altogether. And thus, the neck being put upon the stretch, the muscles, which lie parallel with the vein and across it, are made to exercise pressure enough upon it to interfere with the free current of blood, and to stop the sound ; or the neck being relaxed, the vein and the integuments get folded together, and so pressure is produced in another way, and this equally stops the sound. Try different degrees of pressure upon the internal jugular vein with the stethoscope when the venous murmur is distinctly audible, and you will find how lightly you must hold the instrument to keep it constantly within hearing, how inconsiderable an amount of pressure will obliterate it, and how each degree short of that which obliterates it will give it sundry varieties, and make it musical."—Vol. I., p. 72.

The circumstances connected with the history of this Venous Murmur

have not yet, it must be confessed, been accurately made out.   We have just seen that Dr. Latham states that the slightest tension of the muscles of that side of the neck, where the sound is heard, will generally cause it to cease ; whereas, other auscultators assert, as the result of their experience, that "it is augmented when the vein and sterno-mastoid muscle are made tense, by turning the head strongly to the side opposite to that which you are examining." Our observation leads us rather to side with Dr. Latham. The pressure of the stethoscope must be steady, but not very strong, to catch the murmur.   We have detected it much oftener on the right than on the left side of the neck.   Occasionally it may be heard on both sides, but generally upon the right one most distinctly.   It is sometimes not easy to recognise the venous murmur at once, in consequence of the marked blowing or whiffing to be heard in the subclavian and carotid arteries at the same time, especially, too, as the impulse or throb of these vessels is also stronger than usual.   As we remarked upon a former occasion, the venous sound has more resembled, to our hearing, that produced by water rushing along a leaden pipe than any other sound that we know.   It is, no doubt, a most valuable diagnostic phenomenon ; as its presence, when once clearly made out, will go very far to determine the real nature of many cases—in male, as well as in female, patients—where the symptoms so closely resemble those of decided organic disease of the heart, that even the most experienced may hesitate at once to decide.

We need scarcely say that, on the accuracy of Diagnosis, will entirely depend the appropriateness and success of the Treatment that will be recommended.   The mistakes, that are so often committed in the discrimination of the real nature of many cases of cardiac disease, are alike discreditable to our profession and most pernicious to our patients.   If the case be one of chlorotic or anæmic disturbance of the heart's actions, every one is acquainted with the remedies that will almost infallibly bring about a cure ; and should it be one of organic lesion of that vital organ, we shall still have the satisfaction of knowing that, by judicious treatment, a most essential mitigation of suffering may be insured to the poor sufferer.

Before alluding to the general principles of treatment, as laid down by Dr. Latham, in actual hypertrophic enlargement of the Heart, let us briefly notice what M. Bouillaud has said on the important subject of its ætiology. The following passage in his fourth volume will best exhibit his views on this point:—

"If the general law, which we have propounded in our remarks upon the *rationale* of Hypertrophy,* be not an empty hypothesis, it may be fairly presumed that hypertrophy of the muscular substance of the Heart ought to be frequently met with after long-continued inflammation of its lining membranes, more especially of its inner one, or, in other words, of the Endocardium.   The results of

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* "All accurate observers know how frequent an occurrence it is to meet with hypertrophic thickening in organs which have been the seat of a long-continued inflammatory congestion.   And the remarkable circumstance is, that in the cases alluded to, the pure and simple Hypertrophy implicates the tissues which are adjacent to where the inflammation was seated, more than the tissue itself that was immediately affected.   (This becomes enlarged, it is true ; but then it almost invariably experiences at the same time some serious alteration, such as softening, induration, disorganization, &c.)   Thus it is that the cellular

observation, in 500 cases at least, have convinced me of the truth of this position, which may now, therefore, be regarded as an established general fact or law in cardiac pathology. It is not to be supposed from this that we dispute the agency of other causes in the production of this disease. Those enumerated by Corvisart—' contraction of the arteries, or loss of balance between the calibre of the vessels and the quality of blood to be sent through them; all the obstacles to the circulation of the blood, whether arising from a vice of organization, from any pathological condition, from the influence of moral emotions, or from corporeal offorts or exercises; perhaps, also, the more or less stimulant quality of the blood itself, exciting the organ to more or less energetic contraction '—have unquestionably a morbific effect. One of the most curious and instructive illustrations of one of these agencies, enumerated by Corvisart, may be found in what is apt to take place in the right cavities of the heart in persons in whom the *foramen Botallii* remains open. The principal, if not the only, cause of the hypertrophy of the right ventricle (whose walls have been known to become nearly an inch and a half in thickness), under such circumstances, appears to be the admixture of a certain portion of arterial—which is more stimulating—with the venous blood within its cavity. This opinion seems to be confirmed by what we find to take place in a vein, between which and its adjacent artery a communication has been accidentally established; it becomes thickened, hypertrophied, and, if we may so say, *arterialized.* Now, the right ventricle of the heart may be fairly considered to be analogous to a vein adherent to a sort of artery, represented by the left ventricle. The *venous* heart, therefore, becomes hypertrophied or *arterialized,* just as a vein does where its contents communicate with those of an artery. So striking, indeed, is the resemblance of the right to the left ventricle in the cases alluded to, that several of the older writers, and Corvisart is among the number, have fancied that there was a sort of transposition of the ventricles. Morgagni, in his report of one such case, has expressly said :—*ventriculus sinister formâ erat quâ erat dexter, et dexter vicissim quâ sinister; et quanquam hoc latior, parietibus tamen crassioribus.*

" If the explanation which we propose be just, the conjecture of Corvisart, ' that the more or less stimulant qualities of the blood may perhaps be one of the exciting causes of hypertrophy of the heart,' would assume the importance of a demonstrated truth. We must not, however, omit to take into account other causes, which may act in concert with that one now suggested."

Supposing, now, that the nature of the cardiac disease has been clearly made out, and that no reasonable doubt can be entertained that an actual enlargement of the heart exists, the next questions for the physician come to be, what is the prognosis that he is to form of the case ? and what is the amount or degree of benefit that he may justly expect from the resources of his art ?

According to Dr. Latham's experience, genuine and absolute Hypertrophy of the heart—as ascertained in the manner which has been

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tissue and the lymphatic glands usually become hypertrophied after chronic ulcerations of the skin and mucous membranes, that the fibrous textures of the joints and the articular extremities of the bones themselves become enlarged and thickened after long-continued inflammation of the synovial membrane," &c. &c.

M. Bouillaud had previously alluded to the influence of increased energetic action on the hypertrophic enlargement of muscular tissue, and had quoted with approbation the observation of Corvisart, that " exercise in the case of the external muscles, exercise and irritation in that of the heart, are the principal causes of the more active nutrition of these organs, and consequently of their unusual development."

explained in the present, as well as in the preceding article—is seldom, if ever, truly *curable*. Its effects may be mitigated, and its increase may be much retarded by wise treatment ; but there is no satisfactory evidence, he thinks, to show that a really hypertrophied heart has ever been reduced to its natural dimensions.   It would be important if we could determine this point with accuracy; but as yet we have not sufficient data for the purpose.   Our own experience would lead us to adopt the same views with our author.   But, whatever opinion may be entertained on the subject, no experienced physician will hesitate to give his ready assent to the wisdom of the remark that, in the treatment of actual Hypertrophy, we must be on our guard not to take the mere force of the pulse in determining the amount of blood to be taken by venæsection, when this is deemed requisite.   The object is not to *cure*, but to *relieve*, the disease.   From four to eight ounces will be amply enough.   The operation may require to be repeated at intervals of some weeks or months, its effects on the general system, as well as on the aggravated actions of the heart, being all the while most attentively watched.   But often, very often, the local detraction of blood from the cardiac region is decidedly to be preferred to bleeding from the arm.   Dr. Latham very wisely recommends that the application of a few leeches should invariably precede the use of the lancet ; it is often astonishing how much relief may thus be promptly given.

When Hypertrophy is associated with Anæmia, the case is always a very serious and unmanageable one.   Such a complication may have been induced by the injudicious depletion of blood.   "Beware then," says our judicious author, with marked emphasis, "in the management of hypertrophy of the heart, beware, above all things, of bleeding your patients into paleness and poverty of blood."

The following passage, descriptive of the most frequent of all the complications of Hypertrophy, viz. with Valvular Disease, is so replete with interest in a physiological, as well as in a practical, point of view, that we shall give it entire.

"Here the diagnostic signs of both remain, so that there can never be the least doubt of the existence of either.   The impulse within the chest, constantly augmented in degree and in extent, denotes the hypertrophy.   The endocardial murmur, constantly present, denotes the injury of the valves.

"But, while the coincidence of the two is thus far without prejudice to the diagnostic signs of either, yet looking further to the actions of the heart itself, to the movements of the blood within the arteries, and to the deeper and more vital derangements, which naturally belong to each when they exist separately, we clearly discern the effects of the one wonderfully merged and lost in the effects of the other, now that they exist in combination ; we see the effects of valvular injury merged and lost in those of hypertrophy.

"To valvular injury naturally belong an irregular contraction of the ventricle and an irregular pulse, and obstructions and delays to the course of blood through the arteries in various measures according to its degree.   To hypertrophy naturally belong an excessive force of contraction in the ventricle and an excessive impulse communicated to the current of blood in the arteries.   And this force and impulse are naturally opposed to all that is irregular and eccentric in the action of the heart and arteries, and even counteractive of it, when it would otherwise arise.   Thus, they are counteractive of their irregular action, when it otherwise would arise from valvular injury.

"Moreover this coincidence of hypertrophy of the left ventricle and of an in-

jured valve exhibits the most beautiful example, in the whole range of pathology, of the checking, redressing and compensating powers which nature possesses and uses in furtherance of the great ends of mitigating distress and of protracting life, when some important structure is damaged beyond the possibility of reparation.

"In this coincidence there is nothing of accident; all is of design. The important structure, damaged beyond the possibility of reparation, is the valve. The unsoundness of the valve comes first, and then produces the hypertrophy, and produces with it the redress of its own injuries. While the valvular unsoundness is yet small, and still when it has become greater, and even still when it has become very great, the heart is often found from first to last maintaining its rhythm and the pulse its regularity. And no wonder. For it is accompanied at every stage of its increase by a proportionally increasing power of the ventricle.

"A loud systolic endocardial murmur and an excessive impulse of the heart and a larger space of præcordial dulness than natural, these are the sure and authentic signs of an injured valve and hypertrophy of the left ventricle. Yet often and often are these found to co-exist, when the order and sequence of the heart's contractions and the beats of the pulse are perfectly regular and rhythmical. And further, with this certain evidence of an injured valve and of hypertrophy of the left ventricle, not only will the heart and the pulse beat regularly, but the blood will continue to be distributed freely and equably throughout the body. Often the complexion is still healthy, the lips florid and the body well nourished.

"Here it is the hypertrophy, which is the safety of the patient and enables life to go on as it does. Take away the hypertrophy and leave the injured valve, and the patient would be in a far worse state than he now is; worse with half his disease than he now is with the whole of it. The pulse would begin to flutter, the complexion would become dusky and the lips blue, and the surface of the body mottled and patched in consequence of the blood being here and there unequally distributed or partially detained. The ventricle reduced to its common bulk would want the power needed to impel the blood steadily onwards against an extraordinary obstacle."—P. 297.

Here then we have a striking illustration of the *vis medicatrix* (or *conservatrix*) *Naturæ.* The obstruction to the free exit of the blood from the heart is fixedly mechanical and altogether irremoveable. The only way, therefore, to meet the difficulty is to increase the force of the pump. This is what nature does. The remedy, it must be confessed, is the induction of a new disease: but this is rendered inevitable by the pre-existing one.

In the treatment of Hypertrophy of the Heart, we are always to bear in mind that this morbid change seldom continues long without being accompanied with disease—usually of an inflammatory or of a hæmorrhagic character—in some other organ or part of the system. The Lungs, the Liver, the Kidneys, and the Brain are, each and all of them, exceedingly apt to become the seat of some irregular and morbid action. Perhaps, however, the general Arterial system itself is what most frequently and most severely suffers, and in which the most constant marks of structural change are discoverable upon dissection.

Dr. Latham has very wisely directed the attention of his readers to the very important fact, in the history of chronic cardiac disease, that not only the dynamic forces of the circulation, but that also the qualities of the circulating fluid itself become, in course of time, almost inevitably injured

Hence, unquestionably, the tendency to congestions, dropsical effusions, and hæmorrhages is vastly increased beyond what we may reasonably suppose would be the case, if the blood itself remained in a completely healthy condition.   To omit, therefore, from our consideration the most important element in the production and aggravation of so many maladies—we mean that of *humoral* change—is at variance alike with the rational physiology of disease and with its scientific and truly successful treatment.   The author says :—

" The general mind of the profession is just now all alive in quest of the elements of disease in the blood.   A good deal is in a hopeful way of investigation and some little is already made out.   But let us beware of the common fault of physicians in all ages, and not make too much of our new knowledge and call upon it prematurely to explain every thing.   Thus much, however, we cannot help seeing plainly enough, that the opposite states of plethora and anæmia have a vast pathological import both in themselves and in relation to all diseases, come from what source they may.   They have it unquestionably, and they display it in relation to those secondary diseases which spring from an unsound heart.

"Plethora belongs essentially to the blood, and results from one of its elements, the globules, being in excess.   Now think of what plethora is in its effects: how it modifies the functions of health, how it directly conduces to certain kinds of diseases, and how it stamps a peculiar character upon all.

" Think of great habitual force of the heart's action and great habitual fullness of the pulse ; of blood carrying with it its visible colour of blood much further into the capillaries than natural ; of rapid digestion and rapid nutrition, great consciousness of strength and vitality, and great muscular development.   Such is the health of the plethoric.

" Think of frequent vertigo and ringing in the ears, and frequent drowsiness ; of spontaneous congestions and spontaneous hæmorrhages and feverish heat on slight provocations.   Such are the proper ailments of the plethoric.

        *   *   *   *   *   *

" Again, anæmia belongs essentially to the blood, and results from one of its elements, the globules, being in defect.   Consider what anæmia is in its effects ; how it, like plethora, modifies the functions of health but in a different way ; how it too conduces to certain kinds of diseases, and how it stamps a peculiar character upon all.

" Habitual feebleness and frequency and occasional irregularity of the heart's action, habitual smallness of the pulse, the blood failing to give its colour to the skin and to the visible portions of the mucous surface ; slow and painful digestion, defective nutrition, cold extremities, nervous depression, mental irresolution, such are the ingredients which go to make up the health of the anæmic at best.

" Throbbing in the head, and vertigo and ringing in the ears as frequent as in the plethoric, and pain more frequent and more acute ; also spontaneous hæmorrhage as in the plethoric, but now taking the shape of purpureous spots and blotches ; and œdema of the ankles and feet, these are the proper ailments of the anæmic.

" Then every accidental form of injury and disease putting on the character of weakness ; inflammation itself failing to accomplish the proper work of inflammation for want of power, and not bearing the remedies of inflammation, yet still continuing pertinaciously, and often refusing to be cured ; such is the character they have in the anæmic.

" Now anæmia, bare anæmia, is a thing formidable enough in itself.   Without disease or injury of any solid structure whatever, the essential disorder of the blood alone may kill.   It may give occasion to passive effusions, and to passive hæmorrhages, and to passive inflammation, which bring on death.

" As in plethora, so in anæmia, each unsoundness of the heart becomes condition-
ally a worse disease, but worse in a different way.   As in plethora, so in anæmia,
each unsoundness tends more rapidly to its evil consequences, but those consequences
are apt to emerge in a different manner.   Passive effusions, hæmorrhages, and in-
flammations, are rather wont to appear every where than in certain parts.   Death
seldom now arrives by oppression of the brain or the lungs singly, but oftener by
oppression of many organs simultaneously."—P. 312.

So much for the important subject of Hypertrophy—simple and com-
plex—of the Heart.   We pass on to notice the opposite morbid condi-
tion, viz. *Atrophy*.

We find the following few remarks on its (supposed) causes in M.
Bouillaud's work :—

" The causes of this—by no means imaginary, as has been alleged by certain
writers, and indeed tolerably frequent—disease are either local or general, direct or
indirect, mechanical or vital.   Among others may be enumerated, 1, long-continued
compression of the heart from an effused fluid within the pericardium, or from some
other mechanical cause ; 2, a local impediment to the circulation on which its nu-
trition depends, by contraction or obliteration of the coronary arteries; 3, va-
rious hygienic and diseased conditions, the effect of which is to induce a state of
general wasting or marasmus : the majority of the cases of Atrophy which we have
met with have occurred in persons affected with some chronic, tuberculous, or can-
cerous, &c. disorganization of the chief viscera, or in whom inflammatory disease
had proved fatal after two or three months' persistence ; and 4, an anæmic state of
the system."

The form of Atrophy of the Heart, which is by far the most frequent-
ly met with, is that where the muscular tissue of one or of both of the
ventricles becomes attenuated, and (as is usually the case) softened at
the same time.   We briefly noticed, in our last article, the effects of ac-
tive Carditis in giving rise to actual suppuration in the ventricular walls,
and we shall again have occasion to revert to M. Bouillaud's description
of this very rare lesion.   At present, however, we have to do with a very
different form of the disease ; that, namely, where there has been a wast-
ing or disorganizing absorption of the muscular fibres, so that the fleshy
parietes of the heart often become so thin and softened as readily to give
way under the pressure of the finger.   In many cases, it is impossible to
trace this most serious organic lesion to any probable cause.   We have
already alluded to instances where men, in seeming good health at the
time, have been suddenly stricken with death, and in whose bodies the
walls of one of the ventricles have been found reduced to the thickness of
a line or two.   In other cases, we are not without data for forming a rea-
sonable conjecture, at least, upon the subject.   For example : Softening
of the substance of the Heart has been observed to occur in certain as-
thenic states of the system, in which there is a loss of tone or power in
the entire muscular system ; this atony originating from a diffluent, or
otherwise depraved, condition of the blood itself.   One of the most im-
portant varieties of this morbid lesion is that which so often occurs in
Typhus and other low fevers.

" When, in fevers, the skin becomes dusky, and the impulse of the heart fails and
fails, until it can be *felt* no more ; and the systolic sound of the heart fails and fails,
until it can be *heard* no more ; and death follows ; and after death the heart is found
to yield and fall in pieces under pressure of the fingers ; then surely we cannot be

wrong in ascribing to the softened heart a large share in procuring the fatal result.

"Again, in fevers, when the skin is dusky, and the impulse and systolic sound of the heart both fail, and death is imminent and threatening, and yet under the seasonable use of wine and stimulants the skin brightens and the heart is again felt and heard, and with its returning impulse and sound all inauspicious symptoms are gradually cleared up and recovery is finally complete, then surely we cannot be wrong in believing, first, that the heart had been softened, and had afterwards recovered its natural texture and power; and secondly, that this recovery of its natural texture and power was mainly instrumental in saving life.

"This softening of the heart in fevers is no new fact. But the knowledge of the precise auscultatory signs which denote its softening, and of the precise auscultatory signs which denote its recovery, this indeed is new knowledge, and we owe it to Dr. Stokes, of Dublin. And further, the detection, in these same auscultatory signs, of one precise and plain *indication* to guide us in a most difficult point of medical practice, viz. the administration of stimulants in fever, this too is new, and this too we owe to the same sagacious physician. Whoever discovers a single new indication of treatment, which shall prove just and true and comprehensive, does a better service to mankind than if he found out twenty new remedies."—P. 264.

A similar condition of the muscular substance of the heart has been observed in Scurvy, Chlorosis, and such like diseases.

Dr. Latham is of opinion—contrary to that of several writers on the subject—that the softening of the heart, induced by Fever, Scurvy, or Anæmia, very rarely terminates in a permanent lesion of that organ, after the fever, &c., has long ceased to exist. The cure of the producing disease appears to be generally sufficient to effect a cure of the cardiac affection.

The softening that occurs independent of all constitutional cachexy, is of a much more serious character: it is, indeed, one of the most dangerous of all cardiac diseases. It generally occurs in persons advanced in years, or prematurely old from excesses or irregularities in living; and, before it is recognised, there is almost always some other visceral disease, such as enlargement of the Liver, granulation of the Kidney, &c., or perhaps extensive arterial degeneration, associated with greater or less derangement of the nervous system. Besides, the heart in such cases is not merely softened; it is also very generally either hypertrophied or it is attenuated; and one or both of the ventricles are very usually dilated at the same time.

Before proceeding to notice any other diseases or morbid conditions of the heart, let us here dwell, for a few minutes, upon some of the most frequent and serious lesions that are apt to be induced in several of the viscera, by organic changes in the central organ of the circulation.

As might be reasonably conjectured, the organs which suffer first and most severely in almost all cardiac diseases, are those of respiration; in other words, the Lungs are the most frequent seat of the congestions and effusions, hæmorrhages and inflammations, which are the results and concomitants of heart-disease. The converse, too, of this proposition is equally true; for never are the cardiac symptoms so promptly and so distressingly aggravated as when pulmonic congestion or inflammation supervenes; and, as cases of this complication of evils are of very frequent occurrence, it behoves the medical man to be thoroughly acquainted with the phenomena

which declare its impending or actual existence. The truth of the following graphic description will be recognised by all experienced practitioners.

"A man has hypertrophy of the heart in a moderate degree with some small amount of valvular injury or with none at all. Hitherto he has been tolerably free from painful palpitation and dyspnœa, except under excitement or extraordinary exertion. But suddenly he is found gasping and struggling for breath and expecting instant dissolution. What is this, and what is to be done? Truly one might be excused for thinking of angina pectoris or some spasm of the heart, and flying to ammonia, and æther, and opium, for relief. But putting my ear upon the chest I have found a small crepitation diffused through the half of one lung, or in the half of one lung I have been unable to catch any audible murmur whatever, either natural or morbid. A single cupping upon the chest, just opposite the portion of the lung that labours, has swept away the crepitation, or has removed the dulness and brought back the respiratory murmur; and the patient has been restored in a day or two to his ordinary state of comfort. Here, in one instance, there has been sudden and extensive effusion into the extreme bronchial ramifications or vesicular structure of the lung, and in another there has been sudden and extensive congestion.

"Such cases as these are very striking. All that belongs to the disease, and all that belongs to the remedy is so clear, so marked, and unequivocal; pulmonary congestion and effusion suddenly coming on, and life brought into instant peril; and then, with the use of the proper remedy, congestion and effusion suddenly gone, and life restored to safety."—P. 321.

The direct anatomical connexion between the circulatory and respiratory organs sufficiently accounts for their close and very immediate sympathy in a state of disease. Nature has evidently designed that the lungs should, when occasion requires, act as a channel of relief to the heart, when it is oppressed with blood which it cannot easily discharge. Pulmonary Congestion is an almost invariable accompaniment of advanced cardiac disease; and the profuse bronchial secretion, and occasionally also the expectoration of blood, are only means by which the system seeks for relief. It is therefore by duly regarding these and such like symptoms as processes set up by Nature to relieve first the congested state of the lungs, and secondarily the oppressed condition of the heart, that the physician will be best enabled to conduct the management of such a case. A *cure* is not to be thought of; but much may be done by judicious treatment to mitigate the many distresses that are inevitably present. The grand object should be to watch how Nature herself is seeking relief to herself, and to assist her in the effort; at one time by cautiously unloading the gorged state of the blood-vessels, by means either of a few leeches, or of the cupping-glasses applied over the seat of the pulmonic congestion; at another, by attenuating the bronchial secretion and promoting its more abundant and easy discharge.

"Thus for months and months together, and even for years, we may keep people alive and give them incalculable comfort by aiding the lungs in the office of relief, which they are striving to perform, to an unsound heart. This is done by drawing blood from, or by producing vesication or counter-irritation on, the walls of the chest, just when and where, and to the extent that may be required. We should endeavour to make out from time to time, by careful auscultation, what parts of the lungs chiefly labour, where they chiefly crepitate or where they are becoming dull, and to the surface of the chest immediately opposite those parts apply our remedies. Thus, by taking a few ounces of blood by cupping or leeches, or by applying a blister or a mustard poultice on the *right* spot, and at

the *right* time, we shall often obtain a degree of relief for our patient, which nothing but experience could lead us to expect. And we shall obtain the like relief in the same case again and again, always provided we take the same care to choose the right spot and the right time in the application of our remedies to the walls of the chest. And what is the secret of our success ? The secret (I believe) is this. We are aiding nature in the very channels through which she is seeking to obtain succour for herself. Therefore our remedies are the more effectual."—P. 324.

The influence of *digitalis* in many such cases, and more especially when the action of the heart is unusually violent, is often of the most marked benefit. We must be cautious, however, in the use of this potent medicine, not to administer in such doses, or continue its administration so long, as to bring down the action of the hypertrophied heart to, or below, the standard of health.

We need scarcely say that the pulmonic disorders coincident with an hypertrophic and over-active state of the heart are, on the whole, much more manageable than those which accompany an attenuated and perhaps softened condition of this organ, and a feeble action of the general circulation. It may still be necessary to relieve the congested state of the pulmonary vessels by the use of leeches or of the cupping instruments applied over the seat of the mischief; but the relief thus obtained is neither so decided nor so abiding as in the former case. While we mitigate the local malady by such means, it *may be* necessary, at the very same time, to sustain the flagging powers of the heart itself by cordials and gentle stimulants.

The Brain is probably, after the lungs, the organ which most frequently suffers from organic disease of the heart. When the right ventricle is dilated and weakened, the patient will be exposed to the risk of cerebral congestion, and consequently of an apoplectic or paralytic seizure. On the other hand, if the left ventricle be enlarged and thickened, the opposite condition, that of high cerebral excitement, is apt to ensue. "The head is racked with continual pain; there is little or no sleep; the patient becomes delirious, then maniacal, then convulsed, and he at last sinks from exhaustion of his nervous system."

Among the other secondary disorders attendant upon, and indeed induced by, cardiac disease, especially when the right cavities of the heart are chiefly affected, enlargement, congestion, and various disorganizing structural changes of the Liver and Kidneys deserve the attentive consideration of the physician.* The dropsy, that so generally complicates the

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* M. Bouillaud has the following observations :—" Among the influences that are apt to retard the pulsations of the heart, must be enumerated all gloomy, sad, and depressing emotions of the mind. The presence of the elements of the bile in the blood occasions a remarkable retardation of the pulse. In almost every case of apyretic Icterus, we shall find that such is the case. This curious phenomenon, which has hitherto escaped the attention of physicians (?), has been observed by me in nearly 200 instances. In certain persons of the bilious or melancholic temperament, the pulse has been remarked to be usually slower than in other individuals. Corvisart tells us that Napoleon's pulse seldom exceeded 60 in the minute. I have noticed the same thing in other persons of the same temperament, and in whom the mental energy was great."

latter stages of heart-disease, may, in a very great many cases, be traced to the disordered condition of these two great viscera as its more immediately exciting cause. Hence the obvious importance of assiduously attending to the state of the biliary and urinary secretions in the treatment of all organic affections of the heart, and particularly in those which are seated in its right cavities, and in which there is consequently a greater or less obstruction to the free return of the venous blood. The engorgement of the Liver that is thus induced is known to every medical practitioner; and it seems highly probable that the albuminous condition of the urine, which is not unfrequently observed to be present in cases of cardiac disease, is (often at least) attributable to a congested state of the Kidneys, arising in the manner alluded to. But we cannot pursue this subject at present; and must pass on to other matters.

On the very important subject of Dropsy in connexion with cardiac disease, Dr. Latham remarks, with his accustomed analytic skill—

" In every case of unsound heart the first appearance of the least dropsical symptom marks an eventful period : it marks the period when a new law is beginning to take effect in the circulation and to gain a mastery over the law of health. The law of health, of which the sound heart is the prime agent, retains the blood within the blood-vessels, or dispenses it only for the needs and uses of health. The new law, of which the unsound heart is still the prime agent, suffers or forces the blood or some of its constituents to escape and to form accumulations of serum out of the courses of health.

" A little œdema of the ancles or a little œdema of the face is a sufficient notice of the first yielding of the blood-vessels to this new law, which is no other than a mechanical necessity against which they can no longer hold out. It is the earliest beginning of serous effusion, which may go on increasing until it has pervaded the entire cellular structure and filled every serous cavity of the body.

" All this calls at once for medical treatment. But what is to be done ? The circulation *must* have the relief it seeks somehow. Disburden itself it *must*. There is a physical necessity in the case from which we cannot set it free. Or if we could, it must be by interfering remedially with the actuating cause, *i. e.* by curing the unsound heart. But this is impossible. What then can be done ?

" This can be done and this only. Seeing what nature is doing and must do, we can only go along with her and seek to aid her in accomplishing her own purposes through other and less hazardous channels. Nature is seeking relief by directly evacuating the blood-vessels of their contents. We must try to gain for her the same relief by augmenting natural secretions and so evacuating the blood-vessels through natural channels. The kidneys and the intestinal canal and its subservient viscera are the most eligible for the purpose."—P. 346.

We need scarcely say that the success of our treatment will depend very materially upon the circumstance, whether there be coincident disease in some of the other internal viscera—the lungs, the liver, or kidneys—besides the heart itself, and whether there be any cachectic condition of the blood itself or not, at the same time.

Angina Pectoris.—To the consideration of this frightful and mysterious malady, Dr. Latham devotes his two last Lectures. Its essential characters are, it is well known, an agonizing pain in the region of the heart or immediately under the sternum, accompanied with a sense of imminent dissolution. These are its essential and pathognomonic symptoms. They are often attended with others, but not necessarily so. The most

frequent of these is the extension of the pain to one or both arms, most frequently to the left, and stopping at the elbow. Dr. Copland's definition of the disease is, on the whole, exceedingly good :—

"Acute constrictory pain at the lower part of the sternum, inclining to the left side, and extending to the arm, accompanied with great anxiety, difficulty of breathing, tendency to syncope, and feeling of approaching dissolution."—*Dictionary,* Vol. I., p. 62.

The agony is generally sudden in its invasion, and often equally sudden in its cessation. It is now universally admitted, that the disease is of a spasmodic or spasmodico-neuralgic nature, and that it is not necessarily associated with any one organic alteration of the heart in particular. It has been found, "where there has been ossification or obstruction of the coronary arteries, where there has been dilatation of the aorta, where there has been valvular unsoundness, or hypertrophy or atrophy, or softening or conversion of the heart's muscular substance into fat, it has been coincident with one and one only of these forms of disease or disorganization, or with two or more of them in combination. And it has existed where no form of disease or disorganization whatever has been found either in the heart or in the blood-vessels nearest to it."[*]

The three cases, whose histories are detailed by Dr. Latham, are, each and all of them, very interesting.

The *first* occurred in a gentleman 50 years of age, who had felt himself in perfect health until within a fortnight of his first applying for medical advice. Indeed, in the preceding summer, he had made a walking tour through Switzerland ; and, after returning home hearty and well, had enjoyed the sport of shooting during the autumn. It was while walking up the hill towards Hampstead, one day in the beginning of January, that he first experienced an attack of angina. During the next fortnight, the paroxysms increased in severity and frequency. At first they occurred every two or three days, then daily, and now, (when he consulted Dr. Latham,) several times a day ; at first with, and now without, a cause. The only irregularity discoverable, upon auscultation of the chest, was an "exceeding feebleness of the heart's impulse." Next morning, he had a paroxysm more severe than any he had yet experienced ; but when Dr. L. saw him, he looked to be quite well. In the afternoon, however, of the same day, he was seized with another paroxysm and died at once. *Dissection.*—"The heart was of its natural size, its cavities of their natural capacity, its walls of their natural thickness, and its internal lining and valves bearing no marks of disease. Its muscular substance was more loose of texture than natural, but not softened in an extreme degree, and both its coronary arteries were entirely converted into calcareous tubes as far as they could be traced. The aorta throughout the chest and the abdomen did not present the smallest space free from disease. In some parts calcareous matter was deposited between its coats, in others cartilaginous, and in others a matter between cartilage and bone. This disease, besides

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[*] Perhaps attenuation and softening of the muscular parietes of the cardiac ventricles are the lesions that have been found more frequently than any other in fatal cases of Angina Pectoris.—*Rev.*

destroying the elasticity of the aorta at every part, had greatly narrowed its calibre at a small space of its descending portion within the chest, and so produced some real impediment to the passage of blood. We did not examine the state of other blood-vessels. Other viscera of the chest and abdomen were healthy, except that there was a close and complete adhesion of the pleura of the right lung to the ribs without the least apparent detriment to the lung itself."

The most remarkable feature in this case was the shortness of the interval between the first paroxysm and the one which proved so suddenly fatal; and this too in a man who had previously appeared, and felt himself to be, in perfect health.

In the *second* case, which occurred in a robust man 64 years of age, the heart was found on auscultation to be " beating with a perfect rhythm, and neither with excess nor defect of impulse. The sounds were natural but loudly intonated, and conveyed over the front of the chest far beyond the præcordial region." The respiratory murmur was normal every where. The patient had believed and felt himself to be in perfect health, when he was suddenly, and without any apparent cause, seized with a paroxysm of severe pain, passing from the upper part of the sternum through the chest to the back, and down both his arms to the tips of his fingers. The second attack occurred four days subsequently. From that time, the paroxysms were numerous by day and night. The change from the erect to the recumbent posture always produced them. Their duration was from five to ten minutes. Dr. Latham saw him on the ninth day (from the first seizure), and on the following day, after having had eight or nine paroxysms, he died. *Dissection.*—" The pericardium was found to contain two ounces of clear serum, and upon its surface covering the heart it presented a few small white spots. The heart itself had an appearance of general enlargement. Its internal lining and all its valves were healthy, except that the processes of the mitral valve might be thought a little thickened, but not so as to hinder the circulation. The coronary arteries too were quite healthy. But the muscular substance of both ventricles was so soft as to be pierced through with the slightest pressure of the finger. The aorta was entirely free from all morbid deposits. Both pleuræ were free from adhesions, and contained no fluid in their cavities. Both lungs were entirely healthy, and so were all the abdominal viscera." In this case, too, the fatal rapidity of the disease is the circumstance most worthy of notice.

The *last* instance, related by our author, is that of the late most estimable and deeply-regretted Dr. Arnold of Rugby, the history of whose last illness is so feelingly recorded in his " Life and Correspondence." In his case, (he was 47 years of age,) up to a very few hours before his death, both body and mind seemed equally to give proof and promise of health. He still took his accustomed pleasure and refreshment in strenuous exercise. He retired to rest at midnight on the 11th of June, 1842, feeling and believing himself to be in perfect health. About five o'clock next morning, he was seized with a very severe pain seated at the upper part of the chest towards the left side, and extending down the left arm. It

recurred at intervals. When Dr. Bucknill saw him at seven o'clock, the breathing was not disturbed; but the pulse was exceedingly feeble, and scarcely to be felt at the wrist. Brandy and water was given, and the pulse became natural. The pain returned, and again the pulse became very weak. The paroxysm was short, and he soon recovered himself. While Dr. B. was mixing an anodyne draught, he heard a rattling in the throat, and a convulsive struggle. He turned round and saw that his patient was in the agony of death. The eyes were fixed, and the teeth set. The breathing was very laborious, the chest heaved, and there was a severe struggle over the upper part of the body. The pulse was quite imperceptible, and, after deep breathings at a few prolonged intervals, all was over. Dr. A. died in little more than half-an-hour after Dr. Bucknill's arrival.

Dissection.—Both lungs posteriorly were gorged with blood and serum, and about eight ounces of bloody serum were found in each pleural cavity. " The pericardium was healthy. It contained about an ounce of serum of a straw-colour. The heart was rather large. The external surface was healthy. It was very flaccid and flat in its appearance. It contained but little blood, and that was fluid. There were no coagula of any kind in it. All the valves were quite healthy, and so was the lining membrane throughout. The orifices of all the great vessels were quite natural. The muscular structure of the heart in every part was remarkably thin, soft and loose in its texture. The walls of the right ventricle were especially thin, in some parts not much thicker than the aorta, and very loose and flabby in their texture. Its cavity was large. The walls of the left ventricle too were much thinner and softer than natural. And the muscular fibres of the heart generally were pale and brown. The aorta was of a brown-red colour throughout its internal surface, probably from putrefaction. A few slight atheromatous deposits were observed in the descending thoracic aorta. The pulmonary artery was of the same brown-red colour with the aorta. There was but one coronary artery, and, considering the size of the heart, it appeared to be of small dimensions. It with some difficulty admitted a small director. It was slit open to the extent of nearly three inches. Its internal surface was red but healthy, with the exception of a slight atheromatous deposit situate about an inch from the orifice of the artery. This however did not appear to diminish its cavity."

In the two first cases, we counted the duration of the disease by days; in this we must count it by hours. Not three hours elapsed between the earliest intimation that any thing was wrong with the functions of the heart, and the moment when " the spirit returned unto God who gave it." Very rarely does the stroke follow so quickly upon the first not-to-be-mistaken announcement of its imminence. In most cases of Angina Pectoris, the life of the patient is prolonged for months, and even years; and, very generally, there is complex organic lesion of the heart and great blood-vessels present. The three cases, therefore, which we have now briefly recorded, are especially interesting from their fatal rapidity. It is unnecessary to analyse their peculiarities, or the differences that may be traced either between themselves, or between them and other cases on record. Suffice it to say that they cannot be very satisfactorily quoted to prove the organic or mechanical theory of the cause of Angina. The

truth seems to be that, although a structural change of the heart is unquestionably present in a very large majority of cases, the lesion is not the immediate or direct, but only the predisposing, cause of the disease; the essential one being a *spasm* or cramp of the muscular substance of the heart.*

"From what we know of pain and spasm, and the things causing and pertaining to them, in other parts of the body, we might be prepared for the same sort of things causing, and pertaining to, them when they belong to the heart. Thus we might expect to find angina pectoris incident to any form of organic disease of the heart, but constant to none. And such is the fact. We might expect to find angina pectoris where there was no organic disease of the heart itself, but such organic disease elsewhere as might injuriously interfere with the functions of the heart. And such is the fact. And finally, we might expect to find angina pectoris, where there was no detectable organic disease either of the heart or of other parts, but where itself (namely spasm) constituted the whole disease; a disease purely vital, a disease of feeling and function alone, operating by and through sound structure, it may be fatally, always perilously. And such is the fact."†—P. 387.

The following most judicious remarks on the management of patients, who are subject to the formidable disease of *angina pectoris*, will not fail to be read with interest by every one engaged in practice.

"The paroxysm is often put off and its severity mitigated and life prolonged by no means more surely than by keeping the vascular system in a just balance between fulness and emptiness, between rich blood and poor blood. In some constitutions, very happily born, the balance maintains itself; and then there is no need of interference on our part. In the majority it is not exact, yet exact

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* This seems to be the meaning of the word "distensionem" used by Heberden in his excellent description (the first that was given), to designate the probable proximate cause of the disease. Possibly, also, the idea of the cavities of the heart being so *distended* with blood as to be unable to contract and propel it forward is implied in the term. The following is the passage alluded to:—

 Angina pectoris, as well as I have yet understood its nature, seems to pertain to *distension*, and not to inflammation:

For, first, it comes suddenly and goes suddenly.

Next, it has long and complete intermissions.

Then, wine and spirituous drinks and opium afford considerable relief.

Then, it is aggravated by agitation of the mind.

Then, for many years, it distresses a patient without other injury of the health.

Then, at first it is not excited by carriage or horse exercise, as is usually the case when there is scirrhus (induration or organic disease) or inflammation.

Then, the pulse is not accelerated even in the paroxysm.

Lastly, in some the attack occurs after the first sleep; a circumstance which is common in diseases arising from *distension*."

After alluding to the absence upon dissection of all organic lesions in the heart and great vessels, save only a few small bony specks in the aorta, of one of his patients who died from this disease, Dr. H. remarks that, in several cases, he had observed that the blood retained its fluidity after death, so that it continued to ooze from a wound in a vein, as long as the body remained unburied.—*Commentarii de Morborum Historiâ et Curatione.*

† "The fact is not within my own experience; but I must admit what is credibly reported."

enough for the ordinary purposes of health, but not·enough when there is some grave infirmity to be palliated and made tolerable elsewhere. A small habitual deviation on this side or that is readily felt and resented by the heart, when it has undergone some form of unsoundness rendering it obnoxious to spasm.

" Thus there have been cases in which my treatment of angina pectoris, in the intervals of the paroxysms, has chiefly turned upon reducing the nutritious and stimulant quality of the patient's diet, abridging his animal food, and denying him wine and fermented drinks altogether. There was one case, and only one, in which I was driven to draw blood even more than once from the arm ; an unusual and a hard necessity ! There have been more cases, on the other hand, in which the general habit of the patient has made me fearful of withdrawing support, and experience has shown me the need of supplying a well-regulated amount of stimulus in the shape of wine daily. The administration of steel in the intervals of the paroxysms has (I have convinced myself) in some instances been instrumental to their postponement.

" Truly a volume might be spoken upon the subject, if one were to enter into the detail of all the indications, which the general vascular system may offer to the observant physician, for the employment of remedies as a safeguard, within all possible limits, against the attacks of this awful disease.

" And truly the same may be said of the nervous system, and how it notifies indications of treatment by its various states of disorder ; and how it presents itself as an avenue for remedies, which may carry a salutary impression to the heart and withhold it for a time from falling into spasm. Loss of sleep, disturbed sleep, and painful irritation and troublesome wants, such as frequent micturition, may be among the bad habits of the patient, or they may be induced by his disease, or they may be aggravated by it. At all events they contribute to bring on the paroxysm more frequently and more severely. It is wonderful what a small quantity of opium, administered dexterously upon such indications, will sometimes do in keeping angina pectoris from advancing to a greater degree of suffering, or in bringing it back from a greater to a less."—P. 407.

A dose of Paregoric and sulphuric Æther on going to bed, and again in the morning before rising, will often be found an excellent remedy in keeping the uneasy feelings about the heart at bay. The application of epispastics over the region of the heart, or the establishment of a perpetual irritation there by seton or otherwise, will in many cases be found to exert a decidedly beneficial effect in diminishing the frequent recurrence of the cardiac paroxysms. We need not say any thing on the score of bodily exercise or of mental excitement. The poor invalid soon discovers how inevitably any indiscretion, either of mind or body, aggravates his distress. And surely it is nothing but the duty of a good physician to endeavour to direct his patient's thoughts to the habitual contemplation of those subjects, which will assuredly bring him more perfect tranquillity and a more settled evenness of feeling than all the resources of art or the unaided resolves of weak humanity can accomplish. Nothing but the deep and assured conviction that " all is well with him," can enable the sufferer to anticipate and meet with composure the fearful inward agony, which is never far distant, and which may overtake him in a moment, snapping the cord of life ere relief can be found, or the slightest preparation for death can be made. The thought is indeed a solemn one to all :—what *ought* it to be to one who may be suddenly

> " Cut off even in the blossoms of his sin,
> Unhousel'd, unanointed, unaneal'd,
> No reckoning made, but sent to his account
> With all his imperfections on his head ?"

M. Bouillaud slurs over the subject of Angina Pectoris, as if it were a matter of little interest. Indeed, it may be remarked generally of his bulky work, that the reader will find but very little to engage his attention in the description of those diseases which may be said to be rather vital than physical or material in their phenomena and effects. He is, as might be expected, most elaborate and diffuse in his account of the inflammatory affections of the heart. We shall briefly allude to his opinions on one or two points in the history of those diseases.

He considers that there are two primary kinds of Endocarditis—1, the actively *inflammatory*, such as is so often present in Rheumatism, and in severe Pneumonia and Pleuritis ; and 2, the *septic* or putrid, as is found (so he says) to exist in Typhus, and Typhoid affections. "Doubtless," he adds, "there may be a *gangrenous* form of the disease also ;" but he very wisely reminds us of our utter ignorance as yet of the subject.*

The description, which he gives of the necroscopic appearances of Endocarditis, is strangely unsatisfactory. For example, we are told that the redness of the endocardium is "owing not to any (at least appreciable) injection of its capillaries, but rather to a sort of dying or imbibition of

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* M. Bouillaud appears to have his mind so entirely occupied with the connexion between acute Rheumatism and Carditis, that he does not seem to be at all aware that the inflammatory affections of the heart, and more especially of its inner membrane, have been of late shown to be, in many cases, associated with granular degeneration of the Kidneys. The recent very elaborate paper of Dr. Taylor, in the Medico-Chirurgical Transactions, (vide the No. of this Journal for April, 1846,) has added much to our hitherto imperfect acquaintance with this important ætiological question.

Our readers are probably aware, that we have long advocated the doctrine that endocardial disease is (in all probability) often induced by vitiated conditions of the circulating fluid ; and recent researches have certainly tended to confirm the truth of this opinion. The last occasion, on which we alluded to this subject, was in our review of the first volume of Dr. Latham's Lectures.

"Having thus, at a very considerable length, examined the history of endocardial and pericardial inflammation, more especially in reference to its symptoms and its predisposing causes, the question naturally arises, what is the more immediate *cause* of the disease, and what peculiarity is there in Rheumatism for example, or in Scarlatina, that should be liable to induce an inflammatory affection of the Heart, rather than of any other organ ? For our own part, we have long been inclined to believe that it is *to a state of the circulating fluids* that we must look for an explanation of this pathological phenomenon. Is it not reasonable, to say the least of it, that an altered condition of the blood may occasion an irritation of the lining membrane (more especially) of the heart ? That such an alteration exists in the diseases which we have named—Rheumatism and Scarlet Fever—will be denied by none ; and may not the same be said of the other states of the system, with which active cardiac disease has been observed to co-exist ? The *ætiology* of Heart-affections is yet but very imperfectly made out. In the general run of cases, it will be difficult or utterly impracticable to ascertain the probable cause. In a good many, indeed, it may be found that the patient has, at some period or another, suffered from Rheumatism ; but certainly not in the majority. Let us hope that the great attention that is now paid to humoral pathology will, ere long, throw some light upon this subject."—*Medico-Chirurgical Review for July*, 1845.

the affected surface." A few lines further on, we read that " the redness of the internal membrane of the sanguiferous system is sometimes of inflammatory origin, and at other times is the result of mere cadaveric imbibition. We must remain in doubt as to the real nature of this endocardial and vascular redness in some cases; where, the patients having exhibited during life the symptoms of an imperfectly-developed inflammation of the heart and blood-vessels, the *post-mortem* examination has been made at a time when incipient decomposition of the body has taken place. The uncertainty will be still greater, if putrefaction has fairly commenced, more especially when the patient has died from some typhoid affection, in which the dissolved state of the blood is more than usually apt to induce a sanguineous discolouration of most of the tissues. For my own part, I have been long in the habit of attributing it to the effects of inflammatory action, whenever it could not be reasonably ascribed to cadaveric imbibition."

In addition to increased redness, the Endocardium is frequently found to be swollen, thickened, and not so smooth as in health. These appearances are most conspicuous on the valves. Occasionally, this membrane is unusually friable, and is found to be much more easily detached than in the sound state. Now and then, its surface exhibits several erosions or points of ulcerative absorption.

In some cases, pseudo-membranous concretions, and, in others, genuine pus—either loose, or imbedded within a coagulum of blood—are met with in the cavities of the heart. The former, being possessed of great tenacity, become glued to the valves, and are interlaced with the *chordæ tendineæ*,[*] causing a more or less complete adhesion of their opposite surfaces, and eventually a contraction of the valvular opening. In other cases, the lymph is deposited in the form of granules or rounded vegetations on the loose edges of the valves, &c. In course of time, these granules become so dry and friable as to be readily crushed between the fingers. Of all the cardiac valves, the *bicuspid* is most frequently the seat of these deposits; those of the *aorta* are next in point of frequency. In a few instances, M. Bouillaud has met with a putrilaginous softening of the endocardium, accompanied with a gaseous infiltration of the muscular substance of the heart; phenomena which he has regarded as (probably) the results of a *gangrenous endocarditis.*

As in the case of inflammation of the internal membrane of the arteries and veins, so in Endocarditis, there is a marked tendency to the formation of *sanguineous concretions* or coagula within the cavities of the heart. These are thus described by our author.

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[*] The following allusion by our author to the contraction of these *chordæ* is so truly French, that we cannot withhold it from the reader.

"For some years past, the profession has been much occupied with the subject of Deformities, for the relief of which the operation of Tenotomy has been employed with a varying degree of success. Among the lesions of the cardiac valves, and of their tendons, there are some which enter into the category of those to which we allude. But, alas! the affected parts are in some sort (!) sacred against the surgeon, and inaccessible to his instruments."

" These concretions, different from those which occur in the last moments of life, or immediately after death, are white, elastic, glutinous, adhering to the walls of the heart, just as pseudo-membranous concretions themselves, and, like these last, twisted around the tendons and the valvular laminæ. Analogous to the inflammatory crust of the blood, and imperfectly organized, they sometimes present to the eye, here and there, red points and lines which are in reality rudiments of vessels. They extend more or less deeply into the large vessels which proceed from the heart. Some of these concretions, deposited in the form of granules round the edge of the valves, become, as well as the pseudo-membranous granulations themselves, the origin of those vegetations of which we shall hereafter speak more fully."

After minutely describing the successive changes that take place in the cardiac cavities, and more especially in their orifices, from the time when the semifluid lymph is secreted during an attack of Endocarditis until the deposits acquire a horny or bony consistence, our author concludes with the following reflection:

" The organic contraction of the orifices of the heart, so commonly the result of a lengthened endocarditis, is a new feature of resemblance between the phlegmasia and those inflammations which affect other hollow viscera. Who knows not, in fact, that the urethra, the neck of the bladder, the various excretory ducts of the tears, of the saliva, of the bile, and of the urine, and that different portions of the digestive tube, &c., may experience an organic contraction more or less considerable, in consequence of a chronic inflammation of their internal membrane, and that, as in the case of the heart, it is the narrowest points, viz. the orifices of the organs now mentioned, which are more especially the seat of the contraction ?"

M. Bouillaud in general descants at much greater length upon the necroscopic effects of diseases than upon the phenomena or symptoms which they exhibit during life. Here is a specimen of his semeiological descriptions :

" The want of harmony or correspondence between the force of the cardiac and of the arterial pulse, in the advanced stage of endocarditis, is always a very unfavourable symptom. The heart may be labouring and thumping with violence against the ribs, while the pulse at the wrist is feeble and compressible. When such is the case, we may generally suspect the presence of fibrinous concretions in the cardiac cavities—and especially around the valvular orifices—which necessarily obstruct the free issue of the blood into the arterial trunks. The pallor or livid hue of the countenance, the jactication of the limbs, the oppressive anxiety, the stiflings, and tendency to fainting, sufficiently attest the nature of the existing lesion. When the patient survives for some time, dropsy of the limbs and internal cavities is an almost invariable sequence."*

The following, not very satisfactory, tabular view of the discriminating symptoms between Endocarditis and Pericarditis is given :

. Perhaps our readers may be interested to learn that Mirabeau died of carditis : his sufferings were so severe that he besought Cabanis, his physician, to put an end to them by large doses of opium. " Had Cabanis," remarks our author, " known and practised the method we adopt (bloodletting upon bloodletting until the inflammation was arrested), he might have saved the life of his illustrious friend !"

Simple Pericarditis.	*Simple Endocarditis.*
1. If a considerable effusion exists, the hand is not sensible of the pulsations of the heart, and they are no longer visible. The sounds, in other respects normal, are remote from the ear.	1. The pulsations of the heart are sensible to the hand and to the sight; the sounds of the heart are as near the ear as in the normal state, and are accompanied by a more or less rough blowing.
2. If a moderate effusion exists so that the opposite layers of the pericardium may still be applied one against the other, a rubbing pericardiac sound is heard; a sound which in a manner is perceptible right under the ear of the observer, diffused, rough, a sort of *frou-frou,* which is like nothing but itself.	2. The more or less rough blowing sound which is heard is deep-seated, and the ear readily discovers that it does not take place at the surface, but in the interior of the heart. It is usually audible at a greater distance than the pericardiac rubbing sound, and it is more circumscribed.
3. This sound may sometimes be made to disappear by changing the position of the patient, in such a manner that the effused fluid becomes interposed between the layers which glide roughly one against the other.	3. A change in the position of the patient never causes the sound in question to disappear.
4. The pericardiac effusion occasions the dulness upon percussion to be more extended than in health; also a considerable prominence of the præcordial region.	4. The increased extent of the dulness of the præcordial region is inconsiderable, and, when any degree of prominence exists, it is but very slight.

The attempts to distinguish the exact seat of organic cardiac disease have not, it is well known, been attended with very satisfactory success. Seldom have two authors agreed in their observations upon this point, which is fortunately more curious than of practical moment. M. Bouillaud, indeed, lays claim to extraordinary skill in the diagnosis of this class of maladies; but we are by no means inclined to pin our faith to all his assertions.

"The isochronism of the blowing, sawing, or rasping sound with the systole or with the diastole of the ventricles is not, *by itself,* of so much value as has been alleged by some superficial observers who have, under the vague term 'insufficiency of the valves,' confounded several valvular lesions, that are obviously distinct from each other. Let it not, however, be forgotten, that, in the majority of cases of constriction of one orifice, the abnormal sound is audible, both during the heart's systole and its diastole; but it is important to know that the regular click-clack of the valves, corresponding with the contracted orifice, is extinct or nearly so, while the click-clack of the sound valves continues to be heard. It is quite true that, when the abnormal murmur exists both during the systole and during the diastole, it masks, nay, sometimes entirely conceals, the sound of the valves which are healthy. By removing, however, the ear from the point where the abnormal murmur is most intense, we may by degrees distinguish the sound of the healthy valves. If, for example, there be contraction of the left auriculo-ventricular valve with loud abnormal murmur, audible alike during the systole and the diastole, the ear, applied immediately over or very near to the seat of the sound, will probably not succeed in distinguishing the *clacking* through the morbid murmur with which it coincides. But, if the ear be applied to the middle or upper part of the sternum, or in the subclavicular region, the auscultator will

generally hear, more or less distinctly, the sound in question—which, as is well known, is produced by the *redressement* of the aortic valves during the ventricular diastole. We cannot too urgently recommend physicians, in their use of auscultation in cardiac diseases, to attend to the sounds as heard at different points of the chest. Without this precaution, it would have been a matter of great difficulty for us to have carried our diagnosis of various valvular lesions to that degree of precision and exactitude which may be now attained."

When the first of the two cardiac sounds is chiefly affected in the way of irregularity or other abnormal modification, we may suspect the lesion to be seated in the aortic valves; whereas, when it is the second which is so affected, it is probably in the auriculo-ventricular orifice. In general, too, the pulse is more irregular and unequal, smaller and more intermittent, in the former than in the latter case. Moreover, it is specially and exclusively in the former that the peculiar vibratory fremitus, which Corvisart designated by the word *bruissement,* is perceptible along the course of the large arterial trunks, particularly of such as are near to the heart.

In the following passage, the reader is informed how he may diagnosticate simple and uncomplicated *Hypertrophy of the Cardiac Valves*—a rather uncommon state of things, we ween.

"When the valves are the seat of a well-marked hypertrophic thickening, while at the same time they are exempt from malformation and can play freely, the valvular sounds are stronger, more sonorous than in a normal state, and resemble the clacking of a strong piston, or, better still, that produced by two sheets of parchment being applied smartly one against the other; hence the name *parchment sound, parchment clacking,* which I have given to the valvular sounds thus modified. In some persons, the attentive application of the fingers over the region corresponding to the hypertrophied, *parcheminés,* aortic valves, has made the action of these valves to be distinctly felt, and I regret not having sooner employed this mode of examination. In a good many cases already, trusting to the presence of the double phenomenon now stated, particularly of a well-marked parchment clacking, I have diagnosticated the existence of Hypertrophy of the Valves specified, and on several occasions dissection has confirmed the correctness of the diagnosis. This will surprise only those physicians who are little conversant with the subject on which [we are engaged; the number of these is unhappily still too large."

We proceed to another form of cardiac lesion.

The *ramollissement* or softening of the muscular tissue *of the Heart* from inflammatory action (for M. Bouillaud expressly admits that this structural lesion may arise from a very different cause), and the suppuration that occasionally takes place in consequence of it, are thus described in the "Nosographie."

"In the *second* period of Carditis, softening of the heart is apt to supervene. Of this morbid change there are three principal species: the red, the white, and the yellow. Whatever be the species present, the softening of the heart is recognised by the following characters. The tissue of this organ has lost its natural firmness, so that it readily gives way to the pressure of the finger; it has become friable, and even fragile. In the *red* softening, the muscular substance often exhibits a violet or a brownish colour; it is sometimes accompanied with the infiltration of a certain quantity of altered blood, like the lees of wine, into the muscular interstices and underneath the investing membranes of the heart. At a more advanced period of the disease, the *red* softening becomes transformed into

the *white* or *greyish* kind. It is then that complete suppuration is sometimes to be seen. In the same way as this kind of softening follows upon the red kind, so the *yellow* softening is a sort of transformation of the white. This third species appears to me to belong to chronic pericarditis. Laennec compared the yellowish tint of the morbid change in question to that of some dead leaves, as they fall from the tree.

"Suppuration of the heart is coincident with one or other of the species of softening which we have now mentioned. The purulent matter is either simply infiltrated, or it is collected into a focus, and then there will either be a solitary or multiple abscesses. These abscesses may find their way either to the inner or to the outer surface of the heart."—Vol. I. p. 424.

Ulceration of the parietes *of the Heart*, the result of inflammatory action, commences almost invariably in the endocardial membrane, and thus proceeds from within outwards. It is much more frequent in the left ventricle than in any other of the cavities. The ulcerations vary a good deal in different cases, in point of number, extent, and depth. Occasionally the ventricular walls are completely corroded at one part; and then perforation must inevitably ensue. In a few cases, the effect of cardiac ulceration has been to give rise to a tumour or bulging of the ventricular parietes, altogether similar to an aneurism of an artery;—in short, to a genuine *consecutive false aneurism* of the heart. Formed by the external layers of the muscular walls (sometimes by the pericardial covering alone, which then plays the part of the external coat of an artery), the aneurismal cyst will contain a more or less considerable quantity of laminated coagula. The size of such a cyst has been known to vary from that of a filbert to that of a common egg, and even to be very much larger, as in a case detailed by Professor Breschet.

Of 13 cases of Aneurism of the Heart, which have been analysed by M. Reynaud, 6 were seated at the apex of this organ, and the remaining 7 in other points of its periphery. The rupture of a cardiac aneurism is a rare event. When this frightful accident occurs, it usually happens previous to the formation of an aneurismal pouch, and when the ulceration has destroyed the deepest-seated layers of the cardiac parietes.

Ulceration and Rupture may be limited exclusively to certain *columnæ carneæ*, and more especially to some one or more of those belonging to the mitral valve.

The Diagnosis of Aneurism of the Heart must, in all cases, be merely conjectural. In none of the cases recorded, had its presence been so much as suspected.

With a few remarks on the subject of *Arteritis*, we shall close the present article.

As with the Heart, so it is with the larger arteries; inflammation of their lining membrane, or in other words *Endo-arteritis*, is, according to M. Bouillaud, of much more frequent occurrence than is generally imagined. "The cases," says he, "in which, upon dissection, various arteries—more especially the aorta, and the carotid, cerebral, subclavian, axillary, iliac and crural vessels—have exhibited morbid alterations of a distinctly inflammatory origin, are, I may say without exaggeration, almost innumerable. For some years, too, I have been able to announce, during the life of my patients, these alterations with a degree of precision which has not a little surprised those who have not paid due attention to the subject. They

usually coincide with lesions of the same sort in the heart, and are developed at the same time, under the influence too of the same causes ;—in the first rank of which must be placed *Rheumatic Disease*."

The necroscopic appearances of *acute* Arteritis are these : redness of the internal surface, thickening, injection and softening of the arterial parietes, a pseudo-membranous or even a genuinely purulent secretion in the cavity of the vessel, and the presence too of a sanguineous coagulum, with the consequent more or less complete obstruction of its tube. Occasionally, superficial ulcerations or erosions of the lining membrane are met with. Once or twice, pus has been found external to this membrane. It is because of the softening of the arterial walls that an inflamed vessel is apt to give way under the action of a ligature, as was first remarked by Dupuytren.*

The morbid effects of *chronic* Arteritis are thus described by our author :

" The vascular parietes become thickened and hypertrophied ; the ulcerations become larger and deeper, and may end in perforations ; or at length, the arteries undergo a calcareous or cretaceous degeneration, which renders them friable. In some cases, this degeneration affects their internal membrane alone. The whitish or yellowish points, striæ, patches or spots, so often observed on the inner surface of arteries, are the commencements or rudiments of this sort of accidental ossification (*inchoamenta ossificationis*, to use the language of Morgagni), in the same manner as the milky spots on the pericardium and pleura, are those of the cartilaginous or ossiform laminæ so often met with after chronic pericarditis and pleurisy. However this may be, the furfuraceous, sandy, or pulverulent matter found on the inner surface of arterial tubes—in the form of points, scales, insulated spots or long lines—is removable, in whole or in part, with the nail or blunt edge of the scalpel. The laminæ, which are fibrous, fibro-cartilaginous, or calcareous, are on the other hand so adherent to the internal membrane that they cannot be detached ; they are in some degree incorporated with it.. Occasionally, the calcareous productions project and form a sort of stalactitic deposit on the inner surface, which is generally unequal and rugous at the same time. These productions are often observed to be situated not on, but beneath the inner membrane of the artery."

The *symptoms*, most truly indicative of Arteritis, are those which denote a more or less complete obstruction to the course of the red blood along the course of the vessel or vessels. Thus, when the disease occurs in any of the extremities, the limb becomes chilly and benumbed, and eventually mortifies. This morbid condition is not unfrequently met with in aged people ; hence the term *gangrena senilis*, that has been usually applied to it. It is not, however, confined to old age. Most writers have affirmed that severe pain along the course of the affected artery is very generally present in this species of arteritis. But this is far from being a constant symptom. M. Bouillaud attributes it, when present, to irritation

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* Andral, in his *Præcis d'Anatomie Pathologique*, thus alludes to another morbid change of the arterial parietes. " The middle coat of the arteries may become atrophied, as well as hypertrophied. In the former case, the proper constituent tissue of the vessel becomes gradually more and more effaced, and it tends to return to the condition of mere cellular texture. In consequence of the attenuation of its parietes, the artery acquires the character and appearance of a vein ; so that, when cut across, its sides fall together."

of the nervous filaments which accompany certain arteries, especially those of the extremities. It is not present in inflammations of internal and other arteries which are not provided with sensory nerves.

We have already said that Rheumatism is a frequent exciting *cause* of arteritis, as it is of Carditis. The existence of inflammation in the structures, immediately adjoining to arterial trunks, is probably another cause of these becoming involved in the same morbid action. This point in pathology has hitherto not received the attention which it deserves.

Aorta.—It is highly probable that this great trunk is very often the seat of inflammation, considering the frequency with which morbid deposits and other changes, the result of inflammatory action, are found to affect its tissue. "The redness, the thickening, the pseudo-membranes and the pus, the formation of sanguineous concretions, the softening, the ulceration, and all its consequences, subsequently the hypertrophy with dilatation or contraction of the tube of the vessel, the induration, the cretaceous or earthy degeneration, &c., are so many alterations which are induced by aortitis."

In a case of double Pleuro-pneumony (that on the right side was towards the apex, that on the left towards the basis, of the lungs), M. Bouillaud diagnosticated, he tells us, the existence of inflammation and the presence of a coagulum in the ascending aorta, in consequence of the following auscultatory symptoms: "towards the left edge of the sternum, above and within (sternad to) the left mamma, there was a very strong blowing sound, which extended up to nearly the clavicle; it was isochronous with the pulse, and did not prevent the click-clack of the heart being heard." Two days subsequently, it was found that a "blowing and rubbing sound continued to be heard over the origin of the aorta; this sound resembled somewhat that known by the term *piaulement*, and became in some degree stronger as it was traced up to the superior part of the sternum." The patient died four days afterwards; and on dissection, the following appearances were discovered:

"The aorta—from an inch above its cardiac extremity to where it gives off its large branches—where it was in contact with the right lung, hepatised at its apex, exhibited on its external surface a beautiful redness, which contrasted strongly with the white colour of its other portions. The internal membrane of the arch of the aorta presented a uniform rosy hue, which, on the aortic valves assumed a bright red, not removable by washing, and which contrasted in a very marked degree with the whiteness of the lining membrane of the left ventricle, and also of the pulmonic valves.

"Commencing in the descending portion, and extending along the whole course of the ascending portion of the thoracic aorta, was a sanguineous coagulum, which became thicker and more and more organized as it approached the arch, where it was perfectly white, of the size of the small finger, and, in short, not unlike in colour and form the spinal marrow stript of its envelopes. It adhered to the walls of the aorta so strongly, as to require pretty strong traction to separate it. It became considerably larger, and was in some degree expanded where it entered the left ventricle, three-fourths of whose cavity were nearly filled with it, leaving only a narrow passage for the blood to pass along. The coagulum was reflected around the mitral valve, and insinuated itself into the (left) auricle where it was partly black and partly white, and was less dense than the portion

in the ventricle. In its passage through the auriculo-ventricular orifice, it was en-
twisted around the *chordæ tendineæ*, to which it closely adhered.

" The right ventricle also contained an enormous coagulum, which was dense,
white and fibrinous, investing the tricuspid valve, and penetrating into the auricular
cavity, which it filled almost entirely. The formation of this coagulum appeared to
be more recent than that in the left cavities of the heart."

The diagnosis of a cretaceous degeneration of the aorta, with hyper-
trophy and dilatation of its parietes, is declared to be in many cases
practicable, by attention to the following circumstances: " By inspection,
palpitation and percussion, the degree of dilatation and of the force of
the arterial impulse, may be exactly ascertained. At the same time, pal-
pitation enables us to recognise, when the inner surface of the vessel is
very rough and rugose, a very decided vibratory fremitus; and, by aus-
cultation, we may generally hear over the region of the aorta a blowing
sound, which is usually double, and sometimes so strong that I have com-
pared it to the sound of a curry-comb (*bruit d'etrille*)."

We need scarcely repeat our author's opinion, that the usual causes
of acute Aortitis are, rheumatism and the existence of inflammation of the
lungs, or pleura in the immediate contiguity of the vessel.

Pulmonary Artery.—On the subject of Inflammation of this vessel, M.
Bouillaud's remarks are to this effect:

" A case is related by M. Cruveilhier* of this disease occurring in a woman who
had suffered from uterine and crural Phlebitis after delivery.   *   *   *
The trunk and divisions of the pulmonary artery were filled with firm coagula. In
the former, they were white and coherent; in the latter, they were of a red colour,
and adhered but loosely to the walls of the vessel. In the centre of the principal
clot was a deposit of phlegmonous pus.   *   *   *   There were
traces of a lobular Pneumonia. An acute œdema was, in M. Cruveilhier's opinion,
the result of this lesion. This idea is questionable; seeing that the pulmonary ar-
tery, although conveying venous blood, does not bring the blood back from an organ
to the heart as proper veins do, but carries it to the lungs from the heart. I cannot
therefore agree with M. Cruveilhier in attributing the pulmonary œdema to the ob-
struction of the pulmonary artery. I have met with a great many cases of recently-
formed fibrinous coagula in the pulmonary artery, after severe Pneumonia, Pleurisy,
&c."

The paper of Mr. Paget " On Obstructions of the Branches of the Pul-
monary Artery," in a recent volume of the Medico-Chirurgical Transac-
tions,† has directed the attention of physicians to a point in pathology
which had previously been quite overlooked.

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* *Anatomie Pathologique*, XI. Livraison.
† An ample analysis of Mr. Paget's Paper will be found in the Number of this
Journal for April, 1845.

I. The Vegetable Kingdom ; or the Structure, Classification and Uses of Plants, Illustrated upon the Natural System. By *John Lindley,* Ph.D. F.R.S. & F.L.S.   Professor of Botany in the University of London and in the Royal Institution of Great Britain. With upwards of Five Hundred Illustrations. 8vo. pp. 911. London, 1846.

II. Outlines of Structural and Physiological Botany. By *Arthur Henfrey,* F.L.S., Lecturer on Botany at the Middlesex Hospital, late Botanist to the Geological Survey of the United Kingdom. With numerous illustrations. In three Parts. Part One— Elementary Structures. Part Two—Organs of Vegetation. pp. 106. London.

There is not one of the collateral departments of medicine which has presented a more altered appearance within the last fifteen or twenty years than the science of Botany, whether we regard the advances made in the establishment of philosophical and fixed principles to reason upon, or the manner in which the student of our art is initiated into a knowledge of the fundamental doctrines of this important and interesting handmaid of medicine. The time has not long passed since the study of botany, whether pursued by the professional student or the cultivator of general science, was a study of classification and of terms, and it might well be argued, that as manifold and imperious were the strictly practical duties of a professional career, it was but of slight importance, whether during our noviciate we paid much attention to mere catalogues and words.   Now, however, the whole face of matters has changed ; instead of the different kingdoms of Nature being severed from each other, each broken up again into minute portions, and regarded only in a few and comparatively unimportant relationships, the study of the organized creation has been viewed as a whole, the relations of development between apparently distinct portions shown, the analogies of structure and function, not only between particular groups of vegetable organisms beautifully evolved, but, even with the apparently opposed forms of animal existence, remarkable coincidence of obedience to the same laws of evolution demonstrated to exist.

The same philosophical principles of investigation which have been applied to the study of man and animals are now applied to that of plants. As there is *General and Special Anatomy* of the former, so there is of the latter ; as there is *History of Function* of the one, so is there of the other. There proceed the functions of *Digestion* and *Respiration* in vegetable bodies as do these actions in other organisms, and the processes of *Impregnation* and *Development* are as complex in the one as in the other. It is true that, as yet, no analogues of the nervous centres or system have been satisfactorily demonstrated to exist in plants, but even in respect to this important endowment of the higher forms of organized creation, there are some writers who have expressed their belief of its existence, however modified it may be, in vegetable beings. No doubt can now exist that he

who wishes to have a right knowledge of the laws of life, and a due notion of what is denominated *General Physiology*, must apply his attention equally to plants and to animals. The laws of *primary development* form leading features of modern advanced physiology, and, as they are seen exhibited in both kingdoms of Nature, they must of necessity be studied. In such study it will be found that the laws of the one are nearly identical with those of the other, and that, however the more complex combinations which arise from the formative powers of the different races of beings at one part of the scale differ, yet originally all the forms of organized matter are made up of a series of minute structural elements which are identical in the two departments of Nature. Some persons have at times gone much further, or, as Mr. Henfrey remarks in his introduction,

"Some philosophers have even denied the possibility of defining the limits between the organic and the inorganic world—between a cell and a crystal. Without admitting the validity of this view, which, although plausible in theoretical expositions, is practically negatived by very slight investigation, it must be allowed that the axiom *natura non facit saltus*, holds good so far as relates to the organic creation; the animal and vegetable kingdoms, so distinct and opposite both in appearance and function, when taken in their entirety, approach gradually by their lower tribes, until at the extreme point they meet in a simple cell which stands as it were on the limit."

In former days, the lecturer on botany generally commenced his duties by giving his students definitions of terms, then followed an exposition of the artificial system of Linnæus, and these, varied with a description of different forms of roots, kinds of leaves and flowers, composed the staple of the learner's induction into "the lore of the green herb and the bee-worshipped flower." Now, he unfolds to them comprehensive views of the development of elementary tissues, of the varied combinations of secondary structures arising from these, in fact they are as well grounded in the structural anatomy of a plant, as they are intended to be in the knowledge of that of man, and are shown the intimate relationship existing between the one and the other. Then follows the consideration of structure in action, in other words, the history of function is gone into; and, finally, the student has laid before him the advantages taken from known identities of structure, function and property, to arrange together the various denizens of the vegetable world in systematic groups, and the more important members of these groups as bearing a relation to medicine are described to him in detail. If, in considering the former two departments of the science of botany, he sees exhibited the close and intimate connexion between them and like departments of the history of animal life, in the latter he is no less struck with the valuable results which have accrued to the practical portion of his art—materia medica. How, by reasoning upon the law, that with like structure there is like property, he may avoid, in a strange climate, administering a hitherto to him unknown vegetable production, because the plant that yields it is connected by affinities to others in his own climate, which he has learnt to be of a deleterious nature. Or conversely how he may safely add to the available treasures he already possesses, the product of a plant which otherwise—were he ignorant of its congeners—he might be timid in employing. The student will find, to use the words of the author of the admirable work which is placed at the

head of our notice, in another place, that the science of botany, as it should now be taught him, " is the science which converts the useless or noxious weed into the nutritious vegetable, which changes a bare volcanic rock into a green and fertile island, and which enables the man of science, by the power it gives him of studying how far the productions of one climate are susceptible of cultivation in another, to guide the colonist in his enterprises, and to save him from those errors and losses into which all such persons unacquainted with botany are liable to fall.   This science finally it is which teaches the physician how to discover in every region the medicines that are best adapted for the maladies prevalent in it, and which, by furnishing him with a certain clue to the knowledge of the tribes in which particular properties are or are not to be found, renders him as much at ease alone and seemingly without resources, in a land of unknown herbs, as if he were in the midst of a magazine of drugs in some civilized country."—(*Lindley's Introduction to Botany.*)

In illustration of some of those circumstances which have so helped to change the aspect of botanical science and vegetable physiology within the last few years, we may remark, that a claim of first importance is to be allotted to the discovery and elucidation of the theory of what is termed *cell development.*   The researches of Schwann, Schleiden, Karl Müller, Purkinjie, Valentin and others, not only placed the mode of development and form of evolution of the basic structure of vegetable organisms in their true light, but connected that development and evolution in the lower forms of life by a rich series of microscopic demonstrations with that of the higher.   Of the precise nature of the more elementary tissues before these observers nothing scarcely was known, and of the true condition of their secondary modifications very inexact knowledge existed. The History of the Anatomy of Tissues formed but an insignificant portion of the botanic treatises of the day, and too often the products of supposition were given to the reader in lieu of the results of observation and experiment.   One great reason of this, undoubtedly, was the comparative infrequency of the use of the Achromatic Microscope, by which instrument alone, when high powers are employed, can that exact definition, sufficiency of light and comfort and ease of observation, so as to permit, or induce to prolonged and careful investigation, be at one and the same time obtained.   With the aid of this important and valuable instrument, guided by the more close and rigorous system of reasoning, which has overruled the science of general physiology in modern times, Meyen, Mohl, Link and many others, have erected that superstructure, which must be allowed to have bestowed upon this department of botany the form, character and exactitude of its analogue in the history of animals and man.   Upon the important and fundamental subject of cell-development we would refer the reader to an elaborate Memoir by Carl Nägelli, published in the volume of " Reports and Papers on Botany" of the Ray Society for 1846, as also to the Section on " The Cell as an Individual," in Mr. Henfrey's Outlines, in which also a review of Nägelli's own views will be met with.   The Reports of Link, and the Jahresbericht of Meyen will likewise be found to be the best summaries of what has been effected in our enquiries into the general internal structure of plants.

To Kützing, Decaisne, Montagne, Berkeley, Hassall, &c. &c. we are

indebted for much exact information upon the structure of the lower tribes, or the so-called *asexual* plants, which, from their minuteness and obscurity, the botanists of earlier times were too willing to leave alone. In connexion with these unassuming organisms there have arisen some curious and important questions in relation to the physiology and diseases of man and animals, and also a revivification of a doctrine of metamorphosis taught in the schools of philosophy of old. It has been asserted that many diseases of man and animals have, as their essence, the development of minute parasitical fungi and confervoid plants upon and in the living form, and since the paper of Hanover, "On a Contagious Conferva growing upon the Water Salamander," in Müller's Archives for 1839, the investigation of the subject has been prosecuted both at home and abroad with considerable success towards the establishment of some new principles in pathology. Of these, the chief are, first, that the morbid lesional essence of certain affections is in the development of the vegetable parasitic organisms above alluded to, and secondly, that—' the contagious character of many diseases is owing to the direct transmission of morbific cells, which seem to possess a semi-individual life, from one person or animal to another ;' and that it is impossible to draw a line of demarcation between these primordial cells of the vegetable and animal kingdoms which propagate themselves in one and the same mode. 'Each cell enjoys as it were a separate individuality, so long as it is supplied with nourishment prepared for its assimilation, and effects the multiplication of its kind by the development of new cells of its own nature within itself.'—' There can be little doubt that a cancerous tumour of any size may be developed from a single cell, and it seems very difficult to draw the line which shall separate such independent growths, on the one hand, from the ordinary tissues of the body (in their primordial condition), and, on the other, from structures really parasitic."—(*Carpenter's Animal Physiology.*)

With respect to the vegetations which occur in and upon living bodies, we must refer the reader to Link's Report for 1842–43, as also to the work of Klencke—*Neuen Physiologischen Abhandlungen, Leipsic*, 1843.

Bearing somewhat upon this subject, the Memoir of Unger on Plants observed at the moment of their transition into animals, *Vien.* 1843, and the notices of treatises having a like relation referred to in Link's Report for 1842–43, will be of service to the student. Great value has resulted to Botany from the attention bestowed by Schleiden, Mohl, and Lindley, upon the structures and growth of the stems of Endogens, a tribe of plants most interesting to man, as affording him more food and fewer poisonous species in proportion to their whole number than Exogens do. To Schultz and Lindley also, we are indebted for valuable information upon the same points connected with the last-mentioned division of plants, and are led to believe, from their endeavours, that the period is not very far distant when the structure of the stem will be much more investigated than it is at present, and be employed for the foundation of good and important divisions in Systematic Botany.

Much also has been effected, amongst other things, in relation to the nature and structure of the organs of reproduction, from the discovery of the *Antheridia* and *Pistillidia* of the muscales up to the elaborate investigations of Griffith, Schleiden, and Decaisne, of the generative apparatus

of Santalum and Loranthus.   In the opinion of some, our knowledge of
the reproductive organs of the muscal alliances is so exact, that they do
not hesitate with Montagne in asserting that "nobody now-a-days doubts
that mosses and liverworts have two sexes."   But though much has been
determined upon and proved with respect to this point, formerly so dark
a subject with the older botanists, we are scarcely as yet warranted in
believing this statement, and must accord, with Dr. Lindley, that the ques-
tion of sexes in the muscal alliances is *undecided*. There is no doubt that
two very different sorts of organs exist among their species, but we have
not at present sufficient evidence to show that the *Antheridia* are analo-
gous to the stamens of the higher and more perfect orders. Mr. Griffith,
however, in a very able memoir on the genera Azolla and Salvinia, pub-
lished in the Calcutta Journal of Natural History, agrees in this belief of
the sexuality of Acrogens. But, as has been observed, the question is
not whether there may not be, in such plants as these, some trace of a
male and female principle, or certain organs in which it is probable that
such a principle resides, but whether there is any structure as that which
we know to be sexual in the plants of the upper families.

Whilst noticing the advances made in our knowledge of the sexual
apparatus of plants, we cannot help directing the attention of the reader
to the valuable work of Dr. Lindley, entitled " Illustrations of the Genera
and Species of Orchideous Plants." In this beautiful book it will be seen
how different are the views now taken to former ones of the generative
organs of this strange and highly remarkable group of plants.   Although
as early as 1810, Robert Brown, in his Prodromus, and after him Richard,
placed before botanists a rational explanation of the structures in ques-
tion, yet, in the work alluded to, we are first made acquainted with the
labours of one now removed from us by death, which prove, beyond a
doubt, that although we were not aware of the results of his labours until
the year 1830, yet, before the commencement of the present century, he
was master of much of the subject in question.

" But long before the publication of any rational explanation of the structure
of orchids, while botanists were in utter darkness upon the subject, it had been
investigated by a man unrivalled in his day for the perfection of his miscroscopical
analysis, the beauty of his drawings, and the admirable skill with which he fol-
lowed Nature in her most secret workings; and, let me add, which is a still
rarer quality, the generous disinterestedness with which he communicated to his
friends the result of his patient and silent labours. Sketches were executed by the
late Francis Bauer, between 1794 and 1807, in which the most material part of
what has been published since that period is distinctly shown, and it has been my
good fortune to be the humble means of giving some of these remarkable produc-
tions of the pencil to the world in the illustrations of the genera and species of Or-
chidaceous plants."

Although it was as early as 1790 that the German poet Goethe made
known his views on *Vegetable Metamorphosis*, faint glimmerings of which
had been possessed by Wolff, yet we are indebted to De Candolle, Turpin,
Lindley, Martius, and others, for a rational exposition of this most im-
portant branch of the science of Botany. The principles of Morphology
have, by the labours of these writers, made clear and satisfactory that
which before was " a tissue of ingenious misconceptions," and have given
a rational explanation of that which, without being tested by their ap-

plication, we never could have known—viz. the History of the Fruit. As a condensed but precise view of the nature and general theory of vegetable metamorphosis, we can recommend the short chapter upon this subject in Dr. Willshire's "Principles." The views there offered to the student are founded upon the writings of the German Botanist Von Martius. It is but fair to own, however, that great as the value of the doctrines of morphology is, and more especially in their application to explain the nature of the Ovarium and Fruit, yet that we accord with Dr. Willshire in his statement, that in some cases these doctrines have been carried too far, so much stress being laid upon analysing down to preconceived types, that the true nature of the existing synthesis has been often misunderstood or disregarded. Whilst speaking of the Fruit, we would express our opinion that a great benefit has been conferred by Dr. Lindley upon Botany and its student, by the admirable carpological arrangement given in his "Introduction," which is made primarily to depend upon the structure of the ovary, by which the fruit is of necessity influenced in a greater degree than by any thing else, the fruit itself being in fact but the ovary matured, although, as Dr. Lindley remarks, the abortion and obliteration to which almost every part of the ovarium is more or less subject, often disguises it to such a degree, that the most acute carpologist would be unable to determine its structure from an examination of it in a ripe state only. Of the value of the principles of morphology, the student will find also the memoir of Dr. Zuccarini, on the Morphology of the Coniferæ, translated by Mr. Busk, in the "Reports and Papers" of the Ray Society, an admirable and instructive example.

Leaving structure and its metamorphosis, and casting our eyes upon the history of function, and what relates to the theory of the general nutrition of plants, we shall find that much also has been done. The physiology of vegetable organisms has acquired a new phase, each separate action of vitality has been analysed and examined, apparently to the most ultimate law we can attain to. The process of germination, and the movement of fluids in plants, the functions of digestion, respiration, and secretion, the development of colour, and the generation of heat and light, the nature of and amount of irritability possessed by vegetables, their growth and propagation, have all been by modern physiologists minutely investigated. Among the numerous works illustrative of these subjects, we cannot refer to a better systematic guide than to the elaborate book of Meyen on "Pflanzen Physiologie," in which will be found how much we *now* know, and a history of what was known before.

Upon the investigation of the processes of impregnation, fertilization, and development, the amount of labour which has been expended by the most acute physiologists is enormous. The remarkable doctrine of Schleiden—that we have hitherto named the sexes in plants quite wrong, for the grain of pollen must be looked upon as giving the form of the new being, and therefore the anther is a *female* organ, and the sac of the embryo is to be regarded as the *male* principle, but which only dynamically determines the organization of the material production, (*Willshire's Principles*) —has been to a great extent supported by Wydler of Berne, who remarks—that plants have not their sexes disposed in the manner hitherto believed—the anther, so far from being a male organ, is a female one—it

is an ovary—the grain of pollen becoming the embryo—(*Willshire, op. cit.*)
The enunciation of the above views has caused, as may readily be ima-
gined, much discussion upon this obscure function of the living being, and
although they have not met with general acceptation, yet great increase
of knowledge has been the result of the enquiry.

Upon the subject of generation we must refer also to the views of
Endlicher and Mirbel, to Decaisne on the Fertilization of the Miseltoe,
to Hartig's " New Theory, &c.," and to the notices of several memoirs in
the volume of the Ray Society for 1845. The Third Volume of Meyen's
Physiology also, may be consulted with great advantage.

Upon the curious and interesting subject of the development of heat
and light by plants, the last-mentioned work may be referred to. This
has been but little considered by our own writers, but we believe Dr.
Willshire was the first who, borrowing from Meyen, gave it a separate
consideration in the History of the Functions of Plants.—(*Willshire's*
Principles, page 92, et seq.)

We cannot allow Hartingh's paper on the Growth of Plants, Daubeney's
Lecture on Agriculture, and Liebig's Organic Chemistry in its application
to Agriculture and Physiology, to pass without notice as having all had
considerable influence in raising the physiology of plants to the point it
has attained.

Of the advances made in the systematic portion of the science, no
better proof can be offered than the work of Dr. Lindley, to which we
shall immediately direct the special attention of the reader, and as afford-
ing it a judicious analysis of what others have done, we can refer to it
with pleasure. Speaking of the " schemes" of various degrees of merit,
some of which have dropped still-born from the press, while others con-
tinue to enjoy well-deserved reputations, Dr. Lindley remarks :

" It would be alike unjust to their authors and the public to omit all mention of
even the most obscure of these, each of which has been the result of much thought
and patient study, and has doubtless contributed something to the progress of sys-
tematic science. But it would be beyond the objects of the present sketch to treat
them all at length, nor would the student derive any advantage from doing so;
while therefore the following pages will be occupied by some account of every plan
for a natural classification of which I have any knowledge, since the year 1789 in-
clusive, and of those of Ray and Laennec of an earlier date; such as are compara-
tively unimportant will be dismissed in a few words, and those only which have
been really employed in practice will be stated at length."

Of course the notions of the German Metaphysical Natur-philosophists,
such as Oken, &c., are not held necessary to be considered.

Overruling this department of botanical science, a peculiar doctrine has
emanated from a very high source which, if true, would cause great revo-
lution in all present systems of arrangement. M. Alphonse de Can-
dolle, contrary to the axioms of Ray (Hist. Plant. Vol. I. Pref.) and
of Linnæus (Phil. Bot. 77), requires that *absolute limits* should be assigned
to all groups, of whatever degree. If, says this writer, we cannot state in
what respect two families differ permanently and universally, then two
familes are but one. Two pieces of land which touch each other form one
island, and not two, but two pieces of land which are separated by an arm
of the sea form two islands, and not one (Annales des Sciences Nat.
Ser. 3, Vol. I., p. 254.) But, remarks Dr. Lindley, " this kind of reasoning

is wholly inapplicable to natural history, for the reasons so admirably given by Ray, and is contrary to all experience: If the groups limited by M. Alphonse De Candolle himself are examined by this standard, they alone suffice to demonstrate how visionary are such expectations. It would be very convenient to find his views practicable, but in truth they are quite Utopian." We may refer also to Mr. Bentham, in the London Journal of Botany, 4, 232, who "has satisfactorily answered the learned Botanist of Geneva."

On reference to Professor Griesbach's Reports, on the Contributions to Botanical Geography, the amount of the late expenditure of labour upon the subject in question can be fairly judged of, and it is with great satisfaction we can refer to the publication of a translation, by Margaret Johnston, of Meyen's Outlines of the Geography of Plants, by the Ray Society last year. In this interesting work will be found considered the conditions of climate which determine the presence and distribution of plants, and by which the soil influences their station, &c. The Physiognomics of Vegetation, the Statistics of Plants, and the History of Cultivated Species, employed as necessary foods, useful as luxuries, and as used in the manufacture of stuffs and materials indispensable to man, are treated of in detail, and there is prefixed an Introduction to Botanical Geography, with a list of the principal works which have appeared on the subject since Alexander de Humboldt's Essai sur la Geographie des Plantes, accompagnée d'un Tableau Physique des Regions Equinoxiales, Paris 1805, 4to. We add the following remarks in connexion with the work of Meyen, as the subject is one of considerable interest at the present time.

In 1812 an attempt was made to draw attention to the value of the cultivation of Maize, or Indian Corn, the Zea Mays of Botanists, by Parmentier (Le Maïs ou Blé de Turque a Paris 1812), and M. F. de Neufchateau followed with a Supplement to the above work in 1817. Within the last few months, the same endeavours have again been made, and hopes have been held out that the cultivation amongst us of this cereal grass may in future diminish the risks attendant upon the exclusive cultivation of the potatoe, and the cereals usually grown. How far this is true is doubtful. According to some there is a particular line on the Continent of Europe, north of which maize will not thrive. It will not ripen its grains on poor land or without attentive cultivation, the land must be naturally fertile or made so by art, and, as it could not be safely sown in England before the middle or end of May, in many seasons it could scarcely be expected to ripen its seeds before the winter frost set in. The time of flowering is said also to be very critical to the maize plant, a cold damp atmosphere often causing a great part of the crop to fail, and of all the cereals which are grown by various nations, none except the rice is so unequal in its products. It is stated by Baron Humboldt, that on the same soil, the produce of a grain will vary from 40 to 200 or 300 fold, according to the variation of the moisture and mean temperature of the year, and its culture has the advantage and disadvantages of the vine. Meyen remarks:

"Maize thrives best in the hottest and dampest tropical climates; there are some places where it brings forth 800 fold; in less fertile lands, the produce is 300 or 400 fold, and 100 fold is looked on as a poor crop of the grain in tropical

climates. Maize is less productive in the temperate zone, the average yield in California, between the latitudes 33° and 38° is not greater than 70 fold. In yet colder countries the yield is still smaller, and our cereals gradually supersede the maize : this is the case in Chili, where maize is grown as a vegetable only, and wheat is used as bread. We do not know the exact polar limits of maize culture in the New World, yet, so much is certain, that they lie in the 40th parallel; even in the southern hemisphere where, particularly in Chili, from many causes, the climate is much lower in proportion to the latitude, the maize is cultivated as low as 40°. On the western coast of Europe maize is grown in 45½ north latitude; on the Rhine to 49°, and in our country even in 52°. Large and abundant crops are raised in gardens, yet with us there is little taste for this fine grain, and therefore its culture is neglected. Maize is only grown to adorn our gardens, and the rich produce is given to cattle in Germany. Maize is most extensively cultivated in the rich valley of the Rhine, known by the name of the Bergstrasse, but this district is also the warmest in all Germany.

" At the present day maize is cultivated in all the countries of the tropical and temperate zones which European civilization has reached; it cannot, however, supersede the culture of the earlier cultivated cereals."

Dr. Lindley and Sir W. T. Hooker have done more for the advancement of botanical science in this country amongst the general body of naturalists, than has been effected by the conjoint labours of all other men. The former, by his able writings on its great principles, whether applied to the structure, function, or the systematic grouping of plants, as also by his efforts as an oral preceptor ; the latter, by the valuable aids he has afforded to the practical botanist by his minute investigations into the Flora of our own land, and the production of the best work on the numerous species which flourish in it. We have other great names it is true, and men whose reputations are deservedly spread far and wide. But they have not had the fortune to be able, or the inclination to appeal so much to the popular and every-day requisitions of the mass, as those we have particularly alluded to. *They* have done so, and by their labours have not only met the exigencies which existed, but at the same time have almost reorganized the aspect of botanical science, have bestowed a new phase upon their favourite study, widely extended its boundaries, endowing it with a comprehensive purpose and philosophic character meeting with the general acceptance of the best authorities of the present day.

With the public at large the study of and the patronage given to the investigation of the wonders of the vegetable world must be, by the most enthusiastic of admirers, confessed to be extensively bestowed. Our botanic and horticultural gardens, our flower-shows, our repeated sales of foreign bulbs and plants are proofs of this, together with the numerous works on botany and vegetable physiology for young persons, mainly the results of the labours of delicate and feminine hands. To Mrs. Loudon in particular we stand much indebted. We have but to call to mind the beautifully illustrated works published by Mr. Lovell Reeve and Mr. Van Voorst to be satisfied how much is expended both by the public and publisher. The student of medicine is now amply supplied with works not only evincing the advanced condition of botanical science, but the desire of adapting it to his special wants and requisitions. The course of lectures upon it, which he is desired by the governing bodies to attend, is a most necessary and valuable introduction to the higher department of the history of the structure and functions of the human body. The names of

Roxburgh, Wallich, Griffiths, Royle, and of others, will prove to him how available in a foreign climate may be the exact botanical information he can, whilst a student at home, so easily obtain, and how bitterly he may rue, perhaps, at some future day, the want of that knowledge which at present is so readily at his command.

It has been often urged that the difficulties required to be mastered before the professional student is able to avail himself of the advantages of the *Natural system* in interpreting " the hidden characters with which Nature has labelled all the hosts of species which spring from her teeming bosom" are great in the extreme, and scarcely within the scope of a limited period of study, or that they present more obstacles in overcoming than the fundamental doctrines of other branches of natural science.

" But of that difficulty it may be observed, in the first place, that it is only such as it is always necessary to encounter in all branches of human knowledge, and secondly, that it has been much exaggerated by persons who have written upon the subject without understanding it.

" It has been pretended that the characters of the natural classes of plants are not to be ascertained without much laborious research, and that not a step can be taken until this preliminary difficulty is overcome. But it is hardly necessary to say that, in natural history, many facts which have been originally discovered by minute and laborious research, are subsequently ascertained to be connnected with other facts of a more obvious nature, and of this botany offers perhaps the most striking proof that can be adduced.

" It is true that careful observation and multiplied microscopical analyses have taught botanists that certain plants have spiral vessels and others have none, but it is not true that in practice so minute and difficult an enquiry needs to be instituted, because it has also been ascertained that plants which bear flowers have spiral vessels, and that such as have no flowers are usually destitute of spiral vessels, properly so called; so that the enquiry of the student, instead of being directed in the first instance to an obscure but highly curious microscopical fact, is at once arrested by the two most obvious peculiarities of the vegetable kingdom."

If, however, the distinctions of classes and sections in the so-called *artificial systems* are simple and easy to remember, in the determination of more subordinate groups as of genera, the difficulties are far greater by these than by the natural nethods now adopted for arranging plants. This fact Jussieu long ago remarked, and showed that whatever trouble is experienced in remembering or applying the characters of natural orders is more than compensated for by the facility of determining genera, the characters of which are simple in proportion as those of the orders are complicated. But, as Dr. Lindley remarks :

" All considerations of difficulty ought to be put aside when it is remembered how much more satisfactory are the results to which we are brought by the study of Nature philosophically, than those which can possibly be derived from the most ingenious empirical mode of investigation."

In the work of Dr. Lindley, to which we now especially direct the attention of the reader, we find the results of the most extended practical knowledge of the systematic portion of the science of botany, and of the writings of other labourers, both of this country and the continent. Results developing themselves so admirably in relation to the necessities of the student, whether we regard *what* he should learn or *how* he should

learn it, and information of the highest value even to the most advanced in knowledge, made so easily accessible, demand at our hands unqualified praise. In fact, we hesitate not in saying that the publication of the more than 900 pages before us will form quite an epoch in the *Bibliographia Botanica* of the day. No pains or expense appear to have been spared in the mechanical production of the work, the illustrations are admirable, often exceedingly picturesque, and the whole book a monument to the credit of one of the most pains-taking of men. The general intention of our author will be seen by the following extract from the Preface :—

" Its object is to give a concise view of the state of Systematical Botany at the present day, to show the relation or supposed relation of one group of plants to another, to explain their geographical distribution, and to point out the various uses to which the species are applied in different countries. The names of all known genera with their synonymes are given under each natural order, the numbers of the genera and species are in every case computed from what seems to be the best authority, and complete indices of the multitudes of names embodied in the work are added, so as to enable a Botanist to know immediately under what natural order a given genus is stationed or what the uses are to which any species has been applied. Finally, the work is copiously illustrated by wood and glypho-graphic cuts, and, for the convenience of students, an artificial analysis of the system is placed at the end."

The Introduction of the work is taken up with an able exposition of the various *Natural Systems* proposed by botanists from the time of Ray—1703—to the present time, concluding with the classification proposed and followed by the author himself, together with a review of those principles which should guide us in the formation both of the greater and minor groups of the vegetable world.

The grand object of the author next follows—the consideration in detail of the numerous natural classes into which he divides the 92,000 plants known existing. This portion of the work may be said to consist of two great divisions; one in which the *Asexual* or flowerless plants are included, the other whose aim is the elucidation of the various tribes of the *Sexual* or flowering ones.

Preceding each subdivision—such as of THALLOGENS ACROGENS, &c. &c. will be found an able *resumé* of the general structure and habits of the plants typical of those of the various groups which follow, and we would particularly draw the attention of our readers to the value of the method adopted to afford at a glance the indication of affinities, which consists in printing at the end of the list of genera the name of the Order under discussion in capital letters; placing right and left of it, in small Roman letters, the names of those orders which are supposed to be in nearest alliance to it ; and above and below it, in Italic type, the names of such as are only analogous, or at least have a more distant affinity. Dr. Lindley has borrowed this idea from the paper of Mr. Strickland, on the True Method of discovering the Natural System in Zoology and Botany, printed in the *Annals of Natural History*, *Vol.* VI. *p.* 184.

We entirely agree with Dr. Lindley as to the propriety of omitting any discussions on the proximate principles and ultimate chemical constituents of plants. These are truly questions of pure chemistry and not of botany, have no relation to any known principles of botanical Systema-

tology, and more than one-half of the daily discovered vegetable products are nothing but the *manufactures* of the chemist's laboratory. Should information connected with the subject, however, be required by the botanist, he will find much in the writings of Mohl and Payen, and in the Reports of Dumas, Pelouze, and Adolphe Brogniart, abstracts of which will be found also in the volume of the Ray Society for 1845, in Link's Report on the Progress of Botany. Upon these matters truth obliges us to remark that it is a stumbling-block in the way of advance, yet needed in this department of science, that men famous in different branches of knowledge should be jealous of each other's reputation. We quote the following remarks of Schleiden from Link's Report above alluded to.

" On reading the good-for-nothing opinions of Berzelius and Liebig respecting Schwann's discoveries with regard to the (Gährungspilz) fungus fermentation, one would suppose that these gentlemen had never heard of such a thing as a microscope. On hearing Berzelius speak of Schwann's frivolousness we do not know what to say to such absurdity. I should sincerely congratulate the science of chemistry if Berzelius had always instituted his researches with a circumspection so thoroughly founded upon elaborate knowledge, and a profundity combined with so much modest doubt in his own powers as to screen him from the influence of preconceived opinions, as Schwann has done. Did not the first hundred pages of the sixth volume of his Chemistry occur to Berzelius when writing these words, and produce a blush of shame in him for such a judgment ?"—(*Dr. Lancaster's Translation.*)

Whilst so freely according the most merited praise to the author of the *Vegetable Kingdom*, we must unite with those who disagree with him in the attempt to introduce the fashion of Anglicising Latin and Greek names in the manner he seems to have so much at heart. We deny that it is an available or a useful project, the more especially so in a work confessedly scientific, as the one before us must be held to be, however much it is intended at the same time, to diffuse a knowledge of plants throughout general society. Some of our *scientific* names, undoubtedly, are bad enough, and made up of bits from all sorts of languages—witness such terms as *Kraschenninikovia, Andrezijofskia,* and others ; but, as a general rule, they are quite as euphonious as those proposed by Dr. Lindley for the English scholar, and more acceptable to the systematic botanist. We find nothing very mellifluous about such words as *Helwingiads, Turnerads, Artocarpads,* or *Cedrelads ;* in fact, we hold *Turneraceæ, Artocarpaceæ,* and *Cedrelaceæ* to be infinitely their superiors—so also we prefer *Algaceæ* for *Algals,* and others we could name.

The student of medicine will find ample description of the uses and properties of the more important plants, which are arranged under the various *natural families,* described in the work before us, and considerable research appears to have been bestowed upon this portion of our author's labours. Occasionally, however, we meet with something which makes the professional reader smile—such as,

" *Solanum dulcamara,* the bitter-sweet, is a strong narcotic in its foliage, and its berries are by no means safe, although it does appear that in some cases they have been taken into the stomach without inconvenience.—*Solanum nigrum, :* very common weed in all parts of the world, except the coldest, is more active A grain or two of the dried leaf has sometimes been given to promote the variou`

secretions, *probably by exciting a great and rather dangerous agitation in the viscera.*"

At page 620 it is stated that *Tobacco* is a *powerful stimulant* narcotic—we think it very doubtful if tobacco has the least stimulant virtue whatever, except where it is immediately and locally applied——on the contrary, we believe that it is one of the most *direct* sedatives known.

Cicuta virosa is described as producing effects similar to those of Hydrocyanic acid, and of which we have also great doubts. It is amusing likewise to find the numerous virtues and powers which have been ascribed to many members of the vegetable kingdom, some of which, from the accounts which have been given of them, might be thought to be powerful rivals to the famed *Ginseng* of the Chinese, the *Panax quinquefolium* of systematic writers, and upon which Pere Jartroux says, that the most celebrated physicians of China have written volumes, affirming it to be able to ward off or to remove fatigue, to invigorate the enfeebled frame, to restore the exhausted animal powers, to make old people young, and, in a word, to render man immortal (this saving clause being however added), " if any thing on earth can do so." This wonder of the world, this dose for immortality, has been known to cost its weight in gold. For the " alexipharmic," " cephalic," " corroborative," and " aphrodisiac," &c. virtues of these vegetable miracles, our profession, however, and not Dr. Lindley, are bound to produce proof. Connected with the properties of plants, we are tempted to give the following extract from our author, to show the fund of information which is to be obtained from his work, and to correct what we believe to be a very general error of opinion, that the natural family *Fabaceæ* or *Leguminoseæ*, only affords plants possessing little or no active or deleterious power when taken into the body.

" In a very large number of species narcotic properties have been recognised. The seeds of Lathyrus aphaca have been already mentioned. Those of Abrus precatorius, whose scarlet seeds with a black scar are commonly used as beads, Anagyris fœtida and others, have a similar property. This is, however, positively denied in the case of Abrus, by Dr. Macfadgen (? Maclagen), who asserts them to be harmless, and merely indigestible. The leaves of Arthrolobium scorpioides are capable of being employed as vesicatories. The juice of Coronilla varia is poisonous. The roots of Phaseolus radiatus are narcotic, and so are those of P. multiflorus, the scarlet running kidney bean, which a year or two ago poisoned some children at Chelsea who had partaken of them. Both the Laburnums (Cytisus alpinus and Laburnum) have caused serious accidents to children who have swallowed their venomous seeds, and C. Weldeni is reported to poison the milk of the Dalmatian goats that browse upon its foliage. The dye called Indigo is a formidable vegetable poison. Schomburgh states that the violet blossoms of Sabinea florida are dangerous. The seeds of Ervum Ervilia, the Bitter Vetch, mixed with flour and made into bread, produce weakness of the extremities, and render horses almost paralytic. Andira inermis and retusa, and some Geoffrœas, especially G. vermifuga, and G. spinulosa, have an anthelmintic bark, with a disagreeable smell, and a sweet mucilaginous taste ; the effects are drastic emetic, purgative and narcotic, poisonous in large doses, producing violent vomiting, with fever and delirium. A few years since, hundreds of sheep perished in the Swan River Colony, in consequence of their cropping the leaves of some wild plant there ; according to an official report, it was a Burtonia that produced the mischief, but, according to Mr. James Drummond, the mischief was caused by a Gompholobium. Nothing, however, more

plainly indicates the venomous nature of Leguminous plants than their being used as fish poisons.   The bark of the root of Pisidia Erythrina, a common Jamaica tree, is a very usual fish poison in Jamaica, and yields a most remarkably narcotic and diaphoretic tincture.   Many Tephrosias are employed in the same way, especially T. toxicaria, the young branches of which, with the leaves pounded and sometimes mixed with quick-lime, are thrown into a pond of some mountain stream, and have an almost immediate effect.   The fish are observed to become stupefied, and as it were intoxicated, and to rise to the surface, floating there with their belly upwards, so as to be readily taken by the hand.   It has been remarked that the larger fish recover gradually from the effects of the poison, but that the younger fry perish.   It has been suggested that the action of the plant upon the human system would resemble that of Digitalis, and might prove, in a climate where that plant does not grow, a desirable substitute."—P. 548.

Of Mr. Henfrey's work, we have as yet received but the first two parts—a third and concluding part having to follow.   Unlike the work of Dr. Lindley, the great aim of which is to develop the characters and affinities of systematic groups of plants, this, of Mr. Henfrey, has for its endeavours an exposition of the general and special anatomy of vegetable bodies and the history of their functions.   Much of the former of these subjects is of course found in the "Vegetable Kingdom," but, whilst there it is developed *analytically,* here it is exhibited *synthetically.*

The first part is occupied with a consideration of elementary structures; the second, with an exposition of the organs of vegetation, and certain of the functions of plants.   The chief object of the author being "to give a concise view of the actual state of our knowledge at the present time, to the exclusion of all hypotheses hazarded without sufficient ground or negatived by experience, the various points are treated as they rise progressively in complexity; by this means the development and morphology of structures and organs will be more easily explained, and at the same time will conduce to the simplification of the subject, by leading to the recognition of an unity of plan throughout the vegetable kingdom."

We readily bestow upon the author the merit of having furnished the student with a work more in accordance with the advanced state of the science of vegetable anatomy and physiology, as it exists in France and Germany, than any which he before possessed; and if no great originality, either of text or of illustration, is to be met with in his book, yet in it will be found a simple analysis of the writings of *Mohl, Schleiden, Meyen,* and others.   There is a great amount of information compressed into a narrow compass along with ample illustrations, though the latter, in our opinion, greatly differ from each other in merit of execution.

We must object to what appears to us a frequently loose application of terms met with in Mr. Henfrey's work—why, for instance, are such things as *porous cells* spoken of when no such structures exist?   It is true that MIRBEL, some years ago, spoke of cells, "the sides of which are riddled full of holes," but this has long been shown to be an error, and the true nature of such *pitted* tissue properly demonstrated.   Even Mr. Henfrey is afterwards obliged to modify his statement, admitting that, in the *normal condition* of the tissue in question, there is no solution of continuity of the primary membrane forming the wall of the cell, and that, consequently, no hole or *pore* can exist.

"In old cells the primary membrane has become absorbed, and the space between

the rings, convolutions, or reticulations, are thus converted into holes. *It is probable that this does not take place until after all deposition has ceased, and the cells in such case may be considered as dead.*"—P. 25.

" In their original condition they are *always closed* by the primary membrane, and their contents are only in relation by endosmosis."—P. 27.

It may be our own fault, but we must confess we do not understand the following definition of one kind of our author's *porous cells.*

" B. Cells with bordered pores, arising from the presence of a lenticular cavity between two adjacent pores."—P. 25-26.

In our opinion, the distinction between certain forms of underground stems and roots is not made by any means sufficiently clear to the student. At page 65, the turnip is alluded to as a *root,* whereas, from the researches of Turpin, there is no room to doubt that the turnip, the radish, the cyclamen, and the elephant-foot, are all distentions of the stem, either of the first internodium, or of the inferior prolongation of the stem below the cotyledons, and above the true root.— *Vide Lindley's Introduction to Botany.*

Again, a *tuber* and a *tuberous root* are essentially different in their nature, yet Mr. Henfrey speaks of them as one and the same thing.

" These enlargements are called tubers, and the roots are said to be tuberous."—P. 65.

At page 93, however, it is remarked—

" There is occasionally some difficulty in determining the point, as in such subterraneous branches as those which form the tubers of the potatoe. The expansion of this branch here closely resembles the expansion of the roots in the tubers of the dahlia, &c. The eyes, as they are called, are however true buds, which develop branches above ground, while the aerial buds may be made to form tubers by burying them in the ground."

Now, we affirm there is not the least difficulty in determining whether the tuber of the potatoe be a root or a spheroidally developed subterranean stem, and the only analogy is in *form* between the potatoe and the dahlia. The development of buds by the tuber of the potatoe is at once decisive of its true nature. Mr. Henfrey applies both the terms *nerves* and *veins* to the reticulations of the fibro-vascular system of the leaf.

" The palmate *nervation* occurs sometimes as in *adiantum,* but the pinnate is the more common. The terminal divisions of the *veins,* however, in either case, are bifurcations."—P. 79.

At page 73 we meet with the term *median nerve.* This, to the student of medicine, is utterly destructive of the help otherwise derivable from bestowing the same name only on an organ or structure in one kingdom of nature which is like to, or performs the same offices as the organ bearing the like name does in another. There is nothing worse than this delusive application of terms, unless it be " the reprehensible practice of giving two names conveying different ideas to the same organ in the same kingdom of nature." The language of Linnæus cannot be always that of the present day, and we advise Mr. Henfrey to follow the terms and their application made use of by Dr. Lindley.

Our author speaks of *solid bulbs.* Dr. Lindley (Introduction), and we agree with him, says—a solid bulb has no existence. It is a contradiction

in terms, unless the so-called solid bulb—the *cormus* of modern writers—
be a bud, the scales of which have become consolidated. But, as this hy-
pothesis leads to the very inadmissible conclusion, " that, as the cormus
of a crocus is essentially the same, except in size and situation, as the
stem of a palm, the stem of a palm must be a solid bulb also, which is
absurd."

Mr. Henfrey defines the bulb to be a *form of stem.* The bulb is not a
stem at all—it is an *appendage* of a stem, or a subterranean bud, destitute
of the latter.

We had noted some other passages for comment, but enough has been
remarked upon to prove to Mr. Henfrey that he may yet add to the value
which his little book undoubtedly possesses.

CLINICAL FACTS AND REFLECTIONS ; ALSO, REMARKS ON THE IMPUNI-
TY OF MURDER IN SOME CASES OF PRESUMED INSANITY. By
Thomas Mayo, M.D., F.R.S., Fellow of the Royal College of
Physicians, late Fellow of Oriel College, Oxford, and Physician
to the Infirmary of St. Marylebone. Octavo, pp. 217. Lon-
don, Longman & Co., 1847.

DR. MAYO has surely not the gift of lucid expression, if the reader may
judge from the introductory remarks of his volume.

" The march of science in medical philosophy must follow the laws of the
inductive process, and ascend from individual instances to general propositions.
In the application of the proposition to general practice, the direction of thought
is reversed. But we should err if we limited the science of medicine by this
description of it ; for *pari passu* with the proceeding there noticed, and subsidi-
ary to the application of the principles so acquired, another highly scientific opera-
tion is required. Indeed the march of science towards the formation and application
of general principles will be practically fruitless, if the above-mentioned procedure
be deemed all-sufficient ; if an enquiry be not at the same time vigorously conducted
as to the shades of difference which separate from each other cases of the same
kind. In the first point of view in which I have placed this subject, we deal with
facts in relation to their common points ; but in this second point of view we have
to deal with them in relation to their discrepancies. The first operation is statis-
tical in its nature, and would lead to an undiscriminating practice. The latter
operation unties the facts thus accumulated, and subjects them to an ordeal which
is requisite to their exact use.

" I make the above remarks, in order to obtain its just place and importance for
an enumeration of cases, either single or in groups. Thus individualised, they
possess perhaps a less philosophical air than in their cumulative state. But their
utility is obvious. Indeed, the practical character of the English mind has largely
enriched our medical literature with cases contemplated in this point of view. We
abound in valuable monographs. I am desirous of adding to their quantity, what-
ever may be the quality of my contributions."—P. 2.

Such is the motive of our author's present appearance before the public.
The bulk of his work is taken up with detached, and sometimes fragmen-
tary, reports of cases, deemed to be illustrative of various forms of disease.

We shall briefly notice most of the chapters in succession.   Chapter I. is occupied with the history of three cases of Peritonitis.

In the first two, which occurred in children 8 and 11 years of age, purulent effusion was found to have taken place into the abdomen, without, as it would seem, any well-marked symptoms of abdominal suffering having been manifested during life.   There is a morbid appearance, related in the account of the dissection of one of these cases, that is surely very uncommon.   " The external coat of the peritoneum," it is stated, " the muscles being dissected from it, was red and covered with apparent granulations secreting pus."   Are we to understand from this that the external surface of the abdominal peritoneum had been secreting a quantity of pus ?

The third case calls for notice only in consequence of the very slovenly and inaccurate manner in which the report has been drawn up.   What, pray, is the meaning of the following prescription ?

Sumat pil. Hyd. Chlorid. gr. iv. ; Morph. Mur. gr. ⅓ ; bis quotidie Olei Ricini, ʒ ss. statim.   Perstet.

The second Chapter is headed " Enteritic and Gastric Affections with Petechiæ—Petechial Fever."   These affections are afterwards called by our author " Petechial Phlegmasiæ."   Three examples are related.   The second one stands nearly thus.   A middle-aged man, subject to dyspepsia, was suddenly seized with pain at the stomach, and shortly afterwards with vomiting.   The pulse became weak and faltering ; and within three-quarters of an hour from the first moment of the attack, life was gone. What were the morbid appearances found on dissection ?

" Petechiæ extensively spread between the coats of the stomach, the mucous membrane being perfectly healthy, and there being no appearance of inflammation in the spaces between these petechiæ.

" An ulcer in the posterior part of the aorta, without any aneurismal sac or dilatation, and which had not penetrated the coats of the artery.

" A relaxed and flabby heart, the walls of which tore easily."—P. 14.

Now here was a case of serious Organic Disease of the Heart proving rapidly, as it often does, fatal, and in which traces of congestion were found on the coats of the stomach.   It must surely require a rare tact for detecting resemblances to find out wherein such a case as the preceding can, in any way, be considered as having aught to do with a " petechial phlegmasia."

In the third case, the symptoms were these.   A young athletic man was seized first with vomiting, and then with intense pain at the epigastric and umbilical region, increasing upon pressure.   The tongue was clean, and the pulse quiet.   Several large petechiæ were to be seen on the arms, and his legs and thighs were covered with them.   A blister was applied on the epigastrium, and three grains of calomel were given every six hours, with a saline draught in the intervals.   Next day, after the bowels had acted freely, the petechiæ began to fade, and the patient was much better.   On the following day, some blood was observed in the stools, and, after a turpentine enema, a very large quantity of blood came away.   He rapidly recovered.

Such a case as this is by no means unfrequent.   It is well known that

many cases of Melæna and Hæmatemesis are connected with a congested state of the Liver ; and it has been very reasonably conjectured, by several able physicians, that Purpura is frequently associated with irregularities in the portal circulation. How any one could for a moment entertain the idea that in such a case " the petechial state may have constituted the very essence of the disease," seems to us very surprising.

Chap. III. professes to treat of Gastrodynia. The first case related was cured by the use of a Plummer's pill twice a day, continued for several months; the second, by mild alteratives and aperients; and the third, by the muriate of morphia and the extract of opium. The only thing remarkable in the histories of these cases is the unlooked-for announcement by our author, that " each certainly was tending to a fatal termination, when arrested by remedies." Certainly no one could have suspected, from the account given of the symptoms, that they were half so serious. We should have fancied that it would be easy for almost any practitioner to relate scores of similar cases, successfully treated by the most simple and common remedies.

Chap. IV. is occupied with the history of a case of Ileus, accompanied with stercoraceous vomiting, &c., in which the seat of the intestinal obstruction was in the rectum, " of which about ten (the lower) inches were so obstructed as scarcely to admit a quill." It is strange that this obstruction was not discovered during life, more especially as several enemata had been administered. All that we are told upon this score is to this effect :
" We may observe that the introduction of bougies into the rectum was indicated in this case by the seat of the stricture, and might have relieved it, to the extent of affording a downward passage to the fæces, a tendency towards which had certainly been established by the other means employed, when the case was suddenly and accidentally terminated ;" (the patient having died during an act of vomiting, which occurred during sleep.)
The history of Dr. Mayo's, and indeed of almost every other, case of obstruction of the bowels, that we read of in the medical journals of the day, only tends to confirm us in the propriety of an opinion which we have for many years entertained; viz. that the treatment which is generally adopted oftener does harm than good; and that it would be much better for the patient to be left to Nature's unassisted efforts to relieve herself, than to be drenched, as he is almost inevitably sure to be, with repeated doses of drastic purgatives, which only serve (in a very great many instances) to increase his sufferings and exasperate his disease. If medical men were in the habit of trusting more to the use of leeches—general bleeding also may be necessary—and of continued hot fomentations to the abdomen, and, at the same time, to the frequently-repeated exhibition of purgative enemata, with little or no medicine administered by the mouth, the really remediable cases might in general be promptly relieved ; and, should the obstruction arise from an insurmountable cause, there will be the satisfaction of knowing that the remedies employed, although fruitless, have done no mischief.

Chap. V.—The case of Patency of the *foramen Botalki*—which occurred in a tall stout woman who had lived to 57 years of age—is very interesting. She described herself as labouring under an habitual winter cough. She was subject to sudden dyspnœa, obliging her to jump up, if lying down at the time. The pulse was small and quick. The impulse of the heart was strong; the dulness on percussion in the cardiac region was more extended than usual; and there was a loud systolic bruit over the apex of the heart. The patient was labouring under slight Pneumonia when admitted into the Marylebone Infirmary. No appearance of *cyanosis* was discoverable until four days before death; and it seemed to have been brought on by the effects of a fright, from the violence of another patient in the same ward. The death was sudden and unexpected.

Dissection.—The heart weighed eighteen and a half ounces. The right auricle was large; its muscular substance well developed. The right auriculo-ventricular opening was also large, but tolerably proportioned to the tricuspid valves. These valves were white, and thickened, particularly near the free edges; their columnæ carneæ were remarkably developed. The right ventricle was extraordinarily large, and its walls from three to four-eighths of an inch thick; the columnæ carneæ well marked; the semilunar valves of the pulmonary artery perfect. Its coats, as well as those of the pulmonary veins, greatly distended and thickened, and less supple than usual. The left auricle was large and fleshy, thicker than the right; there was an open communication between it and the right auricle in the situation of the foramen ovale, extending an inch and a quarter from below backwards, and half an inch in the opposite direction. Two membranous bands, extending from the upper to the lower portion of the auricle, divided this opening into three unequal parts. The left auriculo-ventricular opening was normal; the valves ill formed. The under mitral valve almost atrophied; the upper enormously large, about an inch and a half long, and broad in proportion. The left ventricle was greatly hypertrophied; the columnæ carneæ large. The aorta normal.

"The lungs exhibited a few points of semicartilaginous hardness at their summits; they were congested with blood, and somewhat œdematous, but every where crepitant. The liver large, of the nutmeg character, its weight 64 ounces. The kidneys were small. The other abdominal viscera were normal, as was the brain.

"In this monstrous case of perforate foramen ovale, the patient had attained her 57th year, a strongly made and not unhealthy woman, entirely free from the purple hue which belongs to a circulation thus rendered imperfect. In what way, or by what immediate agency, that arrangement was destroyed which had so long given for the most part a right direction to the respective columns of blood, when the sudden fright incurred by the patient occasioned an unfavourable turn to her symptoms, and what was the immediate cause of death, are questions of equal difficulty and interest."—P. 38.

The above case affords a good illustration of what M. Bouillaud has alluded to (vide page 347 of the present No.) in his remarks on the ætiology of Heart Diseases.

The drift of the three cases of Erysipelas, which are related in the next chapter, is to recommend the use of blisters in the treatment of this disease. Dr. Mayo is of opinion that, by thus substituting another form of cutaneous inflammation for the existing morbid one, very marked benefit may in general be obtained. He alludes to no other local application. His remarks are far from being satisfactory.

The observations on " Intermittence or Periodicity as a character of certain Maladies not of an Agueish origin " in Chapter VII., suggest some useful reflections.

" It has been judiciously observed, in regard to intermittents in which the affection of a given organ is more strongly marked than those symptoms which characterize the disorder as an intermittent, that the affection thus evolved or brought out by the miasma of ague may require a special treatment distinct from, or even at variance with, that which its simple periodicity would suggest. In this point of view the supposed affection may be less appropriately called a masked intermittent, than a tendency to phlegmasia brought into an active state as often as the system is disturbed by the paroxysms of the intermittent. This disturbance, however, if of an inflammatory nature, may not terminate with the paroxysm except in appearance ; but the system may be brought gradually into a condition in which the intermittent type may be lost, and a continuous disorder substituted.

" The same discriminate tact is wanted here as in another equally indefinite disorder—Hysteria, in which a phlegmasia may easily combine itself with the nervous affection ; a view of the subject, I apprehend, far more frequently applicable than that suggested by the terms simulating, proteiform, &c., often used as descriptive of hysteria. The disorder which this hypothesis represents as simulated is really existent, and must receive its specific treatment, modified by the judgment of the practitioner as he may best use it.

" The above remarks may claim some importance in reference to the present state of intermittent diseases in our country. Ague has declined in frequency. But may we not in some degree exaggerate the effect of presumed improvement in drainage and cultivation of land as the cause of this diminution ? Is it not in some degree a change in the form of an endemic ?

" The frequently intermittent type of neuralgic disorders, their general susceptibility of benefit from those remedies which are specific in agues, is well known. But it is scarcely conceivable that so great a change should have been effected in the features of periodical disease as the substitution of head-aches, or an epileptic seizure, or a nervous pain, for a rigour, with its subsequent febrile accession, without grounds being at the same time afforded for a careful revision of our practice under these varied circumstances. Nor is this consideration weakened by the remark of Dr. Macculloch, in his valuable work, that the use of the most energetic remedies is in the neuralgic intermittent precisely the same as intermittent fever."—P. 59.

The remarks on " Pseudo-Rubeola," in Chapter IX., do not appear to require particular notice, as it seems very doubtful whether the exanthematous eruption in some of the recorded cases had any thing to do with Measles. Nor does the practice, that was adopted in some of them, seem very commendable. Dr. Mayo's chief error consists in doing too much. Witness the following

Case of Cerebral Excitement occurring in an Hysterical Patient.—" Miss H. was a florid full-grown young lady, aged 20, of the mixed nervous and sanguine temperament. When I was called in, she had for some days laboured under cerebral symptoms ; since, indeed, an inefficient period occurred, in the course of the preceding week, acute pain in the head had increased upon her, upon which delirium supervened, with daily rigours and extreme intolerance of light. She had been freely purged in the last three days ; nothing further had been done : but her complaints of pain in the head were incessant. I directed that her hair, which was luxuriant, should be cropped close, evaporating lotions applied in reference to heat of surface, the head being often hot, and three grains

of calomel every fourth hour. In forty-eight hours the evacuations had become mercurially green. No increase of symptoms had occurred, but no abatement, and her strength had fallen much.

"Having observed some periodicity in her symptoms, and some other hysterical phenomena, and trusting that the calomel had placed her in a state of safety relatively to the congestive part of the case, I now gave her Quinæ. Disulphat. gr. ij. every fourth hour for five doses. On this her strength increased, and the rigours ceased ; her mind also became clear. And now set in a series of hysterical symptoms."—P. 87.

Here nearly two scruples of Calomel appear to have been given in the course of 48 hours ; and this active mercurial course was immediately followed by liberal doses of Quinine. We strongly suspect that a much simpler plan of treatment would have been both wiser and safer. In this case, as in so many others of Hysterical suffering, the bowels were evidently much at fault ; for we read that, "ever since the first head-symptom gave way, the patient had constantly complained of much tenderness of the abdomen. This continued long, and left her gradually, assisted apparently by aperient enemas with assafœtida. Indeed, the symptom so frequent in hysteria showed itself largely, that, namely, of immense fæcal evacuations coming away as the spasmodic symptoms yielded. When waywardness occasionally occurred, we repeated the cold affusion, provided there was present sufficient heat of skin. But she continued long in a very weak state."

This case is related in the chapter on "Hysteria and the Hysterical Diathesis." The object of this chapter is to show that inflammatory and other morbid affections, occurring in hysterical patients, require the same mode of treatment that is called for under other circumstances.

After the narrative of some cases in the way of illustration, and a criticism upon one reported by Sir B. Brodie in his work on "Various Forms of Local Hysterical Affections," our author observes :

"Much loose language respecting the proteiform nature of hysteria, and its tendency to simulate other diseases, has been led to by the confusion of this disease with diathesis, above illustrated. But I am disposed to think, admitting the objectionable nature of such terms, that more valuable practical results would be gained from an hypothesis of palsy simulating hysteria than from the (present) reverse hypothesis. Cases of both kinds may be found in the valuable posthumous medical writings of Dr. Parry, of Bath; and Dr. Billing has recorded a case, in which globus hystericus with palpitation, ensued in a young man upon a violent strain of the spine, resulting from a fall under a heavy weight. I have known no instance in which the treating a 'local hysterical affection' as humoral or inflammatory, would have been so mischievous, as the contemplating that globus hystericus, and the accompanying affection, in the light of hysteria."—P. 100.

But then there is infinitely less chance of the latter, than of the former, mistake. For a single case of the one, there are many hundreds, nay thousands, of the other. Again, surely few physicians will agree with Dr. Mayo, that "more valuable practical results would be gained from an hypothesis of Palsy simulating Hysteria than from the reverse hypothesis."

We have said that Dr. M.'s practice appears to be often far more active

than the symptoms seem to require. In the chapter on "Blood-letting in cases of Congestion," we meet with the case of an infant, in whom he-patisation of both lungs was believed to have supervened upon an attack of Measles. Now, what was the treatment pursued in this instance ? Besides three leeches and a blister to the sternum, the infant appears to have taken daily from three to six grains of Calomel with several grains of Hemlock, for ten days or a fortnight before its death !

Dr. Mayo, at the close of this chapter, quotes with approbation the following extract from the posthumous work of Dr. Parry ; telling us, at the same time, that his own experience perfectly coincides with the doc-trine taught therein, in its yet more extended application of bleeding for Cerebral Congestion.

"*Difference of effect between small and large bleeding in Hemiplegia.*—When Dr. H., who was about 70 years of age, was seized with hemiplegia, in which he totally lost the voluntary power of his arm and leg, I ordered him to be cupped. This was done only a few hours after the seizure. While the operation was performing, when only four ounces of blood had flowed, the power of voluntary motion returned to his limbs ; *but again vanished by the time ten ounces had been taken.*"*

Yet in one of the cases, which he had related, just before, without any comment, the enormous (surely we may say, the excessive) quantity of between 50 and 60 ounces was drawn at one bleeding from the arm, and 20 ounces more, very soon after, from the temples by cupping.

The object of Chapters XII. and XIII. is, in the first, to illustrate the rapidity with which a fatal issue takes place in some cases of Scarlatina Maligna ; and, in the second, to suggest how far the common practice among English medical men, of commencing the treatment of this, and of almost all other fevers, with a purgative, does not often tend to aggravate the symptoms and accelerate the death of the patient. We think him quite right in this particular. Indiscriminate active purgation in Fevers of a bad type, and more especially in the Exanthemata, has unquestionably produced a great deal of mischief. The older physicians very generally condemned the use of purgatives at the commencement of malignant fe-brile diseases. As a general rule, it would be much safer and better practice to substitute an emetic for the purging dose, that is now so usually prescribed under such circumstances.

Dr. Mayo seems to have a decided leaning to the use of the cold affu-sion in the treatment of Scarlatina, but he does not adduce any evidence in its favour. He considers it not improbable that "the deep-seated ten-dency of the English practitioner, always to commence the treatment of fever with aperient medicines, may have rendered the experiment of cold affusion thus far unsuccessful in fever generally ;" and he thinks that "the neglect, which Dr. Curry's discovery has met with, is infinitely dis-creditable to the medical science of England."

The chapter headed "Chronic Cerebral and Spinal Cases successfully

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* Medical Writings of the late C. H. Parry, M.D., vol. i. p. 474.

treated," is surely not worthy of a place in any collection of medical cases. Take, for example, the following report, as one of the instances of the successful treatment of a chronic, spinal, or cerebral disease !·

"The Rev. R. S., aged 37, of a pallid countenance, but strong, short figure, consulted me in February, 1838. He complained of inability to walk, or take any exercise, from vertigo and languor; of a fixed pain, and sense of obstruction, in the occiput, and uneasiness and numbness in the loins. His utterance was slow, and very laborious; and I ascertained from his friends that complaints which he also made of growing incapacity for business, were not exaggerated, whatever the cause might be. He was a sensible man, of an even temper. I ascertained that in early youth some evil habits of an enfeebling nature had been indulged in. He was married, without children, and lived in the country.

Sumat Pil. Hydrarg. Sub. C. gr. iij.; Pil. Galbani. C. gr. v., o. n.

℞ Sp. Ammoniæ Succinat. 3 iss.; Aquæ 3 vj.; 4tam partem ter quotidie.

℞ Ext Colocynth. C. Rhei. āā Əj.; Ext. Hyoscyam. gr. x.; in pil. x. divis. j. vel. ij. p. r. n.

"This course was pursued, with slight modifications, to the beginning of May, and was attended by the greatest relief of all his symptoms. No change was made in the general habits of Mr. R. which could explain his cure, independently of the medical measures. I may add, that I have seen this gentleman since in the enjoyment of good health."—P. 126.

The solitary case of " Meningitis, showing only increased vascularity," related in the next Chapter is—standing as it does by itself—to say the least, very profitless. " Every day's additional experience," remarks our author, " tells us, how little we know, so far as post-mortem appearances are concerned, of the evidence of sthenic inflammation, where only increased vascularity is present, in cerebral disease ; and, again, the inexpediency of a depletory system in acute mania rests on good authority."

Can we report more favourably of the contents of the next Chapter, entitled " Albuminous urine—Ascites—Paracentesis Abdominis ?" In truth, we cannot. The narrative of the first case is so slovenly and imperfect that it is impossible to make any thing out of it. The specific gravity of the urine in the first case is stated to have been 10 ; the author means, we suppose, 1,010. Then, from the mere circumstance that it was slightly albuminous, he takes it for granted the kidneys were affected with granular degeneration ; and, finding that his patient appeared to be rather benefited than otherwise by the use of mild mercurials, he hints that these have been needlessly reprobated in Renal Diseases. " The opinions, expressed on high authority against the use of mercury under presumed granular disease, deserve to be reconsidered. The inflammatory process often attendant on that state is such as mercury influences curatively in other instances. The question, no doubt, must be settled by experience ; but, as far as analogy is concerned, the burthen of proof rests rather with those who impugn the expediency of mercurials in these cases, than with those who may assert it."

The case of presumed " Cæcal Abscess," opening externally upon the right nates, deserves brief notice only from the strange tone of the remarks with which its history concludes :

" Besides the general interestingness of the subject, I am inclined to think that our diagnosis, both in abdominal and thoracic disease, might be helped by farther enquiry into the distinctive cerebral phenomena to which they may give occasion.

" Whatever interest the above particulars may claim, not the least important fact which they convey is the completeness of the patient's recovery under the agency of the waters of Homburg and Schwalback. And I may here observe, that the patient, whose judgment and clearness of intellect might well be relied on, has affirmed to me with great distinctiveness the benefit which she received from those waters, independently of the general good obtained from air and scene, to which we are, perhaps, disposed to attribute more than the due share which they are entitled to in the recovery of chronic cases."—P. 152.

The case of " Double Consciousness, &c.," occurring in an hysterical girl, related in Chapter XVIII., leads Dr. Mayo into the dubious paths of metaphysical speculation. He shows a kindly feeling to the Mesmerists, and considers that they have been unfairly dealt with by the medical profession. " We allow our nurses," says he, " to rock our infants to sleep. Are we to be told that it is absurd and unjustifiable to produce a form of sleep, during which pain is unfelt, and irritation allayed, by movements of the hands?" He evidently believes in the reality of the mesmeric *rapport*, and its accompanying marvels :—

" Whatever the beneficial effects of mesmerism may turn out to be, it comes before us fraught with liabilities to abuse and mischief in its application to chronic disease, which is likely to be its especial subject, of no common kind. The possession which it gives to the manipulator of the person's mind who is subjected to his agency, is of a nature to justify these fears, and there is reason to suppose that it has been sometimes turned to the worst account by unprincipled persons."— P. 157.

There is no evil that we ever heard of as likely to result from mesmeric manipulations save that—a great and most mischievous one, it must be admitted—of their being made the occasion of acting upon the sexual feelings of young females. This, in short, is the secret of almost all the cases of successful mesmeric practice having occurred in unmarried women. Hence, too, its deserved reprobation by the great mass of the medical profession, as well as by the public generally, as a means of therapeutic relief. The guarded and hesitating manner, in which our author handles the subject, betrays a sad want of confidence in his own judgment ; for, if we mistake not, Dr. Mayo has been making enquiries into Mesmerism for some years past. With a decided leaning to its claims—for in one passage he does not hesitate to recognise the *truthfulness* of the assertion, that Mesmerism is " a law of nature which is as much a part of the human constitution as the processes of thought and digestion"!—he will not, however, commit himself either one way or the other, but suggests that the Royal Society, or some such public body, should appoint a commission to examine into its merits.

" One would have thought, that the extremely interesting nature of the mental phenomena disclosed by mesmerism, supposing it to be truthful, or to contain truth, would have so strongly disposed philosophical men to the enquiry which I am suggesting, as that no arguments such as I am adducing should be needed. It is to be regretted that there is no royal society for psychological as well as for material phenomena.

" A candid enquiry into what may be termed the more substantial forms of empiricism is expected generally from us by the public ; for the most important physical truths must have had an empirical period in their promulgation. At the same time, considerable difficulties are thrown in our way by that same public, in the execution of this duty. The public is, indeed, a severe task-master. It is at once inquisitive and sensitive in regard to so-called quackery ; prompt in imputing that contumelious term to regular practitioners, if they afford attention to the class of subjects, and equally prompt in imputing to them an uncandid spirit if they decline to do so.

" Our efforts in this direction will, in truth, be most effective, and at the same time least detrimental to ourselves, if directed from without ; the governments of other countries have empowered commissions of enquiry into such matters. There never has been an epoch in the history of medicine at which such a commission has been more expressly indicated than at the present moment."— P. 159.

What good, may we ask, has the double French Commission done ? Next to nothing ; both parties, mesmerists and their opponents, have appealed to its reports in justification of their opinions.

The transition from one description of empiricism to another is just what might be expected. We were therefore not surprised to find, after Dr. Mayo's bland demeanour towards Mesmerism, that he was nearly equally courteous to the sister science (!) of Homœopathy. He alludes, at first, with expressions of admiration, to the " philosophical investigation" of its claims, which one of our contemporary Journalists has recently instituted, and the result of which has been to convince him (not Dr. M.) that the homœopathists have the merit of curing nearly as many patients as the regular practitioners ! Our author has not a single word to say in the way of contradiction or of protest against this specimen of ignorant credulity. But when he is coolly told by one of this gentleman's correspondents— whose communication is declared to be " of high stamp and admirable tendency,"—that, "in all cases and on all occasions, Nature is truly the agent in the cure of the disease ; and that, as she acts in accordance with fixed and invariable laws, (what, pray, is the meaning of this in reference to diseases ?) the aim of the physician ought always to be to facilitate her efforts, by acting in harmony with, and not in opposition to, these laws," he at once detects the fallacy of the assertion, and exposes its absurdity with considerable spirit in the following passage :—

" That diseases follow laws and a course imposed by nature is most true ; this I presume to be the meaning of Dr. Combe ; it is moreover equally true, that in many cases this law, or course, though it is quite compatible with the completion of the disease, is incompatible with the life of the patient. Thus, when pneumonia proceeds from its congestive to its inflammatory stage, then onward into hepatization and purulent infiltration, can any thing be more natural or more fatal than its progression ? As a disease in which the so-called natural treatment is applicable, that is, in which most of those resources must be excluded which thought has elicited from the stores of nature, Dr. Combe has most unhappily selected pleurisy ; and here, supposing the exciting cause not to have been violent or long-continued, he recommends the absence of medicinal agents. He even argues in favour of effusion being allowed to take place. The possible slowness of its un-assisted absorption, its injurious influence upon the investing membrane of the thoracic cavity, the gradual substitution of a purulent for a serous effusion, where blood-letting and the use of mercury might have forbidden that event, is left un-

,heeded. Surely these are contingencies not to be hazarded with a view to follow
laws of disease which lead to structural disturbance. The laws and history of
ague have been most attentively and wisely studied for many ages; not in order
that our practice might be in unison with those laws, but that it might interrupt
and break the sequence of phenomena which would take place under them. If the
disease be permitted to exhaust itself under this sequence, the patient is probably
exhausted *pari passu*."—P. 183.

A little farther on, Dr. Mayo makes the following very just observa-
tions :—

" There is something very attractive at first sight in the prostration of scientific
interference before natural laws. But it is not justified by the history of the laws
of *disease*, in the extent to which it is recommended. That history and those laws
must in fact be attentively perused and excogitated, as the plans of an enemy are
studied, and with the same intention; namely, with a view to obviate them or pre-
vent their development. The doctrines of non-interference may gain a temporary
sway through the talents of their supporters, but this truth, habitually familiar to
the English mind, will afterwards recur in full force, and ' Young Physic ' will rise
from a temporary suspension of active measures to a more heroic use than ever of
calomel and the lancet."—P. 188.

No sooner, however, has our author given expression to these remarks,
than straightway he speaks of a report of cases treated on Homœopathic
principles as " a very valuable contribution," an " excellent detail !" As a
specimen, he relates from the said report a case of Pneumonia, where the
patient's life was evidently sacrificed to the plan of treatment by infinites-
mal doses of Aconite and Phosphorus! Yet such is the system, by the
adoption of which we have been told of late, by some who have put
themselves forward as would-be regenerators of the science of Medicine,
" homœopathists cure nearly as many patients as the regular practitioners."

On the strength of the very mischievously mismanaged case just alluded
to, Dr. Mayo screws himself up to declare homœopathy a " heresy ;" but
the tenderness of his spirit seems at once to rebuke him for the harsh-
ness of such an expression, " which may seem inappropriate to the
labours of the very respectable practitioners, by whom it has occasionally
been carried out!" and he closes his remarks by predicting " that the
theory of Hahnemann, and his school, is destined to melt away and dis-
appear, or to be consolidated in a fragmentary state with the general
mass of medical knowledge, so far as any portions of it can survive the
test of time and experience."

Now we must frankly tell him, that it is not by such weak and washy
means as he employs that the progress of rank empiricism is to be resisted,
and the scientific character of our profession is to be defended against either
the open assaults of mendacious quacks, or the covert underminings of
false or ignorant friends within the camp. We want bolder and stouter
men than him to expose and denounce the " heresy " that he alludes to.
Dr. Mayo, indeed, is not likely to apostatise from the true faith ; but it
would not do to rely upon his strenuous assistance in defence of it. He
is one of those who are neither hot nor cold ; but his lukewarmness seems
to proceed rather from distrust of his own judgment than from any vacil-
lation of principle. He evidently perceives the folly of the attempt that
has lately been made to bring the *niassaries* of a do-nothing practice into
favour, and yet he lacks courage to condemn it with energy and decision.

He gently taps the delinquents upon the back, expressing his regret that they have gone so far. He will not join with them ;· but he is not quite prepared to set himself against them. It is this weak and uncertain conduct, this half halting between two opinions, this vain seeking to reconcile the claims of science with the pretensions of quackery, that we cannot abide. It is high time for men to speak out their minds with unmistakeable decision. For any one, who has had the opportunity of studying diseases not in the closet or from books alone, but by the bedside of the sick, to try and make us believe that recovery from an acute malady like Pneumonia is quite as likely to take place in the hands of an Homœopathic doctor as in those of a regular Physician, is a piece of effrontery that we were certainly not prepared to expect in the present day.   But the foolish attempt will not do.   There may be much to correct alike in the science and in the art of medicine in the present day, both in this country and abroad.   But it is assuredly not by preaching down either the over-active practice of some physicians, or by preaching up the do-nothing silliness of empirics ; it is not either by denouncing polypharmacy on the one hand, or by eulogising homœopathy on the other ; it is not by suggesting the trial of every new remedy,* or by giving currency to the assertions of such men as Fleischmann or Henderson—alas ! the disgrace to that uni-

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* The last suggestion, that has been made by one of the disciples of the "Young Physic" school, is the use of the cold-water sheet in the treatment of Fever ! Some of the cases, treated according to the Preisnitzian plan, were cured within forty-eight hours ! Morrison's Pills, we doubt not, could do the same. At least, an Hygeist would tell you so. But a much more offensive communication, than even that of the surgeon of the Leicester Dispensary, is the account given by a medical officer of one of H. M. ships of the practice which he has been pursuing, of late years, in the treatment of the crew that were committed to his professional care. This person—he wisely withholds his name, and that of the vessel to which he is attached—informs us that, upon a recent outbreak of Fever (the remittent of the Mediterranean, we believe) on board his vessel, he selected twelve cases for experiment. Of these, four were treated by him with Blood-letting and the use of vigorous antiphlogistic remedies ; two with large doses (a scruple) of Quinine, from the very commencement of the attack ; two with liberal doses of Mercurials ; two with a draught—containing 90 drops (!) of Laudanum, as many of tincture of Digitalis, and of antimonial and ipecacuan wines—to be given at once, and to be repeated in six hours ; and two with mere sponging of the surface with vinegar, and the unrestrained use of water to drink. Of the first four, two died ; of the next two, one died ; and of the following two, one died : the others recovered. "Need I add," says this reckless promulgator of his own shame, "that, since that period, the patient labouring under Fever, who has been solely under my charge [his colleagues, we suppose, would never go along with him], has never been bled, or that but very little medicine, in the treatment of either the Mediterranean or the W. Indian Fever, has been expended in my practice." This wiseacre goes on to tell us that, for some years past, he has never used the lancet but once, on board his ship ; and he closes his communication with cases of Gastrodynia, obstinate Constipation, and of Dysentery accompanied with Tape-worm, in which a cure was effected with bread-pills, after the ordinary remedies had failed ! All this is certainly very creditable to the naval medical service, in the present day ; and not less so to the character of professional journalism, in the 19th century.

versity which has had a Cullen and a Gregory among its teachers, and is still graced by the names of an Alison and a Christison ;—it is not by such means as these, that the errors of the healing art in the present day are to be corrected.   No.   It is by the inculcation of a more sedulous observation of diseases and of their symptoms, by a more minute enquiry into their predisposing and exciting causes, by a more exact scrutiny of the condition of every part of the body, fluid as well as solid, internal as well as external, and by a more diligent examination of all the excretions, but not an exclusive attention to any one of them ; it is by carefully observing what things do harm and what do good, and by remembering how much may often be effected by regulation of the food and drink which a patient takes —a wide field of therapeutic research—of the air which he breathes, the locality where he resides ; it is by studying the operation of Mind and its thousand feelings upon the health of the body, and of the influence of evil habits, unrestrained indulgences, vicious practices on the physical constitution of our nature ;—it is in this way, and in this way alone, that the practice of Medicine can be improved, and our profession made to maintain that place in the estimation of the wise and the good, which it was designed to occupy.   The natural, and indeed inevitable, result of following such a plan will be, that medical men will be simpler in their treatment of most diseases, more scientific and less mechanical and routinist in the selection of their remedies.

Many maladies, we all know, will cease quite as well and almost as quickly without medicines—but not without medical treatment—as with them.   The numerous cases of catarrhs, rheumatic pains, &c. which are so rife just now (February), will generally subside under the use of the most simple means, provided due attention be paid to diet, clothing, exercise, &c. He who doctors such cases by mere physic, may unquestionably consult the interest of the chemist or the business-like appearance of his own day-book, but assuredly the patient will have no cause to thank him.   Lower the diet, forbid strong meats and drinks, give diluents, enjoin warm clothing, and all will speedily be well ;—more speedily perhaps, if some mild diuretic febrifuge be given at the same time.   We have daily occasion to regret the too frequent neglect of hygienic, and the undue attention that is paid to medicinal, therapeutics.   The physician who does not give exact instructions as to the former, in almost every case that he is consulted upon, has done but one half—and that often the least important—of his duty.   In the treatment of some maladies, indeed, the direction of the regimen is almost every thing.   Scrofula, in its hundred forms, bears witness of this. There is therefore quite as much skill required in the management of the diet, &c. as in the selection of the appropriate medicinal remedies to be employed.   Nor are we to suppose that the treatment of diseases more by hygienic, and less by pharmaceutic, prescriptions affords any argument in favour of the extravagant notion that, because Nature is the agent in the cure of diseases, and as she acts in accordance with fixed and invariable laws, therefore " the aim of the physician ought always to be to facilitate her efforts by acting in harmony with, and not in opposition to, these laws."   There is just about as weak and pernicious folly in ascribing all, or nearly all, to the " vis medicatrix naturæ," as there is in neglecting its operations altogether.   In some cases, there is no curative effort at all

made by the system. What, pray, would become of the Chlorotic girl, if the cure of her malady was left to—nay, were it even influenced by—the suggestions of her own feelings, and the cravings of her appetite? Or, is the patient, we may ask, affected with Diabetes, led by the instinctive promptings of Nature to avoid the use of those very articles of food which will inevitably exacerbate his malady, and aggravate all his sufferings? Again, in other cases, Nature may indeed effect a cure, or rather a termination, of an exciting disease; but it will be at the inevitable induction of a most serious lesion, or perhaps at the cost of life itself. Where is the homœopathist who, if he was labouring under an attack of Iritis, threatening the loss of sight, would be satisfied with any thing short of the very active remedies which every enlightened physician would at once employ? And if inflammation is seen to produce such grave effects in the case of the Iris, its consequences are not less so in other parts which are hidden from our immediate inspection. That the subjective symptoms—those, we mean, independent of auscultatory investigation—of Endocarditis, for example, will often cease under the employment of the most simple remedies, cannot be denied; but is there not more than sufficient warrant to believe that, under such circumstances, the liability to incipient organic mischief of the Heart will be tenfold greater than if the patient had been treated according to the principles which have been explained in a preceding article of our present Number?

We should like to have pursued these remarks, and to have endeavoured to point out what are the classes or families of diseases wherein the inexperienced practitioner is apt, on the one hand, to do too much, and, on the other, to ascribe undue importance to the medicinal agents which he may have employed in their treatment. But this we cannot do just now. Suffice it therefore merely to say, that it is more especially in the management of idiopathic Fevers of all sorts, that the operations of nature ought to be watched with most sedulous and patient attention, with the view of determining the line of practice that should be adopted. Infinite mischief has been done of late years by laying down dogmatic and peremptory rules for the treatment of diseases which change with every season, and almost vary in every individual. Had the indications of Nature, derived from a most diligent observation of all the symptoms of disease, been more faithfully followed out, and had the bold pretensions of pathological anatomy and physiology been more cautiously received, we should not now have been exposed to the taunts of the empiric, nor to the still more humiliating conviction within our own minds, that the boasted discoveries of modern medical science have not taught us how to treat a large proportion of diseases a whit more ably or successfully than did many of our predecessors in the old time before us.

I. HISTOIRE DE LA MEDECINE DEPUIS SON ORIGINE JUSQU'AU XIX.
   SIECLE. Par le Dr. *P. V. Renouard.* Tom. II. pp. 980. 8vo.
   Paris, 1846.

II. ESSAI SUR L'HISTOIRE ET LA PHILOSOPHIE DE LA CHIRURGIE.
   Par M. *Malgaigne.*

[Concluded from page 316.]

Medical Organization in Europe during the Arabic Period.—In Europe
amidst the chaotic confusion consequent upon the barbaric invasions,
the ecclesiastical schools placed under the protection of the bishops,
alone retained a slight image of literary and scientific instruction. The
exercise of all the liberal professions, and especially of medicine, thus
fell into the hands of the clergy; and we read of priests, abbots, and
bishops officiating as the physicians of kings and popes. Several of the
female religious orders likewise meddled with the practice of physic. Be-
tween the 9th and 13th centuries, the Jews, in spite of the canons of the
Church which forbade them, divided this monopoly with the clergy. Seve-
ral of them learned in Arabic were enabled to peruse the medical works in
that language, and acquired a degree of skill in their treatment which caus-
ed their services to be sought in the courts of princes and even in the pal-
aces of pontiffs. The acquirements of these practitioners, however, wheth-
er Jewish or Christian, were usually of the most meagre character; medical
education, by reason of the rarity of books and the want of teachers, being
an impossibility. No restriction on, or examination for, practice being in
existence, crowds of low ignorant persons, barbers, bathmen, and women
assumed the titles of curers of disease. Although the law provided no
security against ignorant persons assuming these functions, it visited ac-
cidents which resulted from their ministration with fine or imprisonment.
M. Malgaigne suggests that such severity was especially employed in sur-
gical cases, the practice in which was abandoned to persons of the lowest
condition, internal medicine only being in the hands of the Clergy. It is
probably from about the 7th century that medicine became disunited from
surgery. This separation, so little rational in itself, was in violation of
the traditions of the great masters, and was gradually brought about by
the ecclesiastical prohibitions against the clergy spilling blood, prohibitions
which, from their frequent iteration by popes and councils, accompanied
by the severest menaces, seem to have been constantly violated. However,
in the course of the 12th century, the secular authority commenced en-
deavouring to remedy the abuses produced by this pernicious exercise of
medicine. Roger of Sicily seems to have been the first sovereign who
(1140) published an ordinance compelling those who would practise physic
to obtain an authorization, and other monarchs gradually followed his ex-
ample; while the institution of university grades and faculties completed
medical organization.

5. *The School of Salerno.*—The origin of this celebrated school is some-

what obscure. It was said to have been founded by some of the refugees from Alexandria; but the period of its greatest splendour was from the tenth to the thirteenth century. The great reputation its professors obtained, far exceeding that of any other part of Christendom, induced persons afflicted with diseases difficult of cure to repair to it from all parts of Europe. Among the most illustrious of the professors was Constantinus Africanus, who flourished in the middle of the eleventh century, and rendered great service to his epoch by his compilations from the Greeks and Arabs, and powerfully contributed to popularize the knowledge of the East, in an age remarkable for its ignorance. During the thirteenth century, Frederick II. of Naples decreed that no one should practise medicine without having first been received into the College of Salerno—the course of instruction occupying five years according to Sprengel, and but two according to Malgaigne. The candidate was examined in the therapeutics of Galen, the first book of Avicenna, and the Aphorisms of Hippocrates, and compelled to take an oath that he would exercise his profession honourably, and not participate in the gains of the apothecaries He who desired to exclusively practise surgery, was obliged to study only for a year, especially directing his attention to anatomy. The celebrated Dietetic Precepts of the School of Salerno, composed in 1100 for the use of Robert Duke of Normandy, who repaired there for the cure of his wounds on his return from the Crusades, has long excited much attention and been the subject of numerous commentaries.

6. *Origin and Development of Universities.*—"In the time of Charlemagne, every Cathedral possessed its school, and in some of these the elements of medicine were taught. When the medical profession had been declared by many councils incompatible with the priesthood, the Popes, in order to retain the jurisdiction they had so long maintained over the members of the medical body and the bar, erected certain of these schools into *Universities,* in which wore taught philosophy, theology, laws and medicine, or only some of these faculties. In this way arose, during the thirteenth century, most of the principal European universities. 'All science,' says M. Malgaigne (Introd. to the works of Ambrose Paré), was in the hands of clerks, and instruction for having quitted the cloister was no less catholic. These new clerks, attached to the head of the church by their oaths and their privileges, constituted for him a numerous and powerful militia; and while, by the clergy properly so called, the popes reigned over the consciences, by means of the university clerks they governed the intellect. Who can feel surprised that they should impatiently desire to concentrate all their power in the same hands?' We must, however, render the act of justice to the popes, monks, and clergy of allowing that they prepared the way for the intellectual movements of modern Europe. The universities, by bringing together studious men together, afforded them the occasion and the means of mutual enlightenment, excited their emulation by honours and rewards, and, in fine, contributed very efficaciously to the elevation of the Christian civilization above all others.

"The great effects of these liberal institutions, it is true, were not immediately perceived. It required several generations to develop the consequences and ripen the fruits. This is why the end of this historical period, less barbarous than its commencement though it be, has transmitted to us few names worthy to arrest our attention. Men who then gained a reputation in science, and especially in medicine, shone less by reason of the merits of their works, than by their love for instruction, and the zeal they exhibited in seeking this and propagating it. At the present day, when literary riches abound, we can with difficulty form an

idea of the price they must have cost our ancestors. We are astonished at beholding them making journies as expensive as painful; without any encouragement or hope of remuneration, merely to obtain a manuscript or hear a renowned professor."—P. 450.

Among the learned persons enumerated by M. Renouard who, at this period, made some efforts to restore the fallen condition of medical science, we can only briefly notice the most famous one of them, *Guy de Chauliac*, who flourished at the commencement of the 14th century. He studied medicine at various schools, was deeply versed in the ancient authors, and became himself a prolific writer, exhibiting, as M. Malgaigne observes, a certain independence in form and criticism not found among the Arabic and Greek commentators. His *Magna Chirurgia*, which he terms the *Inventory* is the principal work which he produced. In it he exhibits a vast erudition, and thus happily reconciles the services of the ancients and moderns. "The sciences are formed by successive additions, and the same men cannot lay their foundation and conduct them to perfection. We are as children riding on the neck of a giant; aided by the works of our predecessors, we are enabled to see all that they saw, and something more." He traces the requisites of a surgeon, M. Malgaigne adds, with a nobleness of language and terseness of expression which the medical world had not seen since the time of Hippocrates. He says, "he should be well read, expert, ingenious, and very morigenous," that is, according to his own interpretation of this last word, bold in sure things, careful in danger; he should avoid bad cures and practices; he should be kind to his patients, indulgent to his colleagues, and wise in his predictions; he should be chaste, sober, compassionate, and merciful, not greedy or extortionate for money; receiving a moderate recompense according to his labours, his dignity, the circumstances of his patient, and the nature of the issue or event." He insists upon the necessity of dissections, observing that, for some time, anatomical demonstrations had been made on animals at Montpelier, and suggests the expediency of their also being performed on the bodies of criminals. He is the first author who alludes to some anatomical plates, which were designed by one Mandeville. His work, giving a critical abstract of the surgical writings of all prior authors, and that at a period when books were both so scarce and so dear, did immense service for the surgeons of the epoch. For nearly two centuries it became "the surgical code of Europe; translated and commented upon in all languages, and reproduced in various forms, it has long been a classic, and preserves some of its interest even at the present day, as exhibiting the state of the science at the end of the Middle Ages." Guy punctured the abdomen in ascites, attempted the radical cure of hernia, and seems to have operated for cataract; but, although he describes lithotomy, after the Arabs, he left its performance to the itinerant adventurers who at that period undertook it.

7. *Accessary Institutions.*—Charitable establishments multiplied wonderfully during this period, both among the Mahomedans and the Christians; and numerous religious associations devoted their attention to the sick. Sovereigns and Popes not unfrequently offered examples by dressing leprous sores with their own hands: and at no period of history were zealous exertions more required. The leprosy and other cutaneous dis-

eases, favoured by the misery and filthy habits of the period, spread with frightful rapidity; and, at the end of the 13th century, at least 2000 leper-houses existed in France alone, and 19,000 in entire Europe.   The severe precautions the lepers were surrounded by, and the cruel privations they were submitted to, testify the consternation the disease excited, and the noble devotion of those who resigned themselves to taking charge of these unfortunate outcasts.

An institution, the establishment of *public baths*, which became general in most cities, doubtless contributed far more than any coercive measures to the diminution of cutaneous disease.   In the 15th century, the bath-men had formed a powerful brotherhood in Paris; and Despars, physician of Charles VI., and one of the most renowned professors of the faculty, having too openly protested against some abuses the baths led to, was compelled, by the persecutions this company raised against him, to quit the capital.

III. THE AGE OF RENOVATION.

[Extending from the commencement of the 15th Century to the Present Time.]

7. *The Erudite Period.*
[Comprehending the 15th and 16th Centuries.]

M. Renouard characterizes this epoch *Erudite*, on account of the re-newed attention which now began to be paid to the ancient medical classics. Europe had long been content to receive them with all the imperfections of the Arabic versions; but, during the 15th century, a taste for Greek liter-ature sprang up, which was immensely reinforced by the dispersion of numbers of learned Greeks upon the taking of Constantinople by the Turks in 1483.   They for the most part fled to Italy, where they were well re-ceived and patronised by the Roman Pontiffs, the Medici and other poten-tates.   From this period, translating, collating, and commenting upon the Greek authors became the favourite occupation of the learned, and the task was executed with unwearied diligence, remarkable care, and great sagacity, men of the very highest talent and attainments frequently de-voting themselves to its accomplishment.   From among the learned phy-sicians who were especially instrumental in diffusing this knowledge of the Greek writers, the author cites the names of *Nicholas Leonicenus* and *Thomas Linacre*, both of whom repaired to Italy in order to instruct them-selves from the lips of the refugee Greeks.   Leonicenus constantly in-veighs against the predilection which his cotemporaries manifested for the Arabic writers, and translated from Greek into Latin for their use, the Aphorisms of Hippocrates and several of Galen's books.   *Linacre* also, upon his return to England from Italy, published some excellent translations from Galen, and became indeed the prime mover in reviving the study of the classic languages in this country.   He enjoyed great con-sideration, founded chairs at Oxford and Cambridge, and, in 1518, laid the foundation of the earliest institution—the College of Physicians—which this country possessed for the examination of the competency of persons practising physic.

The following is an abstract of the views of the progress of the several branches of medical science furnished by M. Renouard:

1. *Anatomy and Physiology.*—For a long period pigs, monkies, and other of the lower animals, were alone submitted to anatomical inspection, and the dissection of the human bodies by *Mondini*, at Bologna, in 1315, was an act of singular boldness.   Shortly after, he published a small manual of anatomy, illustrated by wood-cuts; and although the descriptions it contained were very imperfect, it constituted the only text-book in the schools, besides the writings of Galen and the Arabists, for more than two centuries afterwards.   Towards the end of the 15th and beginning of the 16th century, the prejudices against anatomy began, however, to diminish, the Popes removing their interdictions against it, and the Italian universities furnishing the first opportunities for its public pursuit.   Dissections were performed at Bologna, Padua, and Pavia, before 1500, and shortly after this the celebrated *Sylvius* pursued the study of anatomy with great vigour at Paris ;   none of these admitting any thing contrary to the authority of Galen, but as a derogation from the ordinary laws of Nature, or as a result of the degeneracy of the human race.   At last, however, a true man of genius, *Andrew Vesalius,* appeared.   A hard student in ancient literature, he also early devoted his attention to anatomy, dissecting while yet a boy every animal he could meet with, and stealing his first skeleton from the gibbet itself.   Arrived in Paris, he was not contented with the lectures of Sylvius, but still sought every opportunity for examining Nature, even to the extent of disinterring bodies in the cemeteries—a practice at that superstitious period attended with risk to life itself.   So rapid was his progress, that, at 23, he was nominated professor of anatomy at Padua, and, at 29, published his famous work (*De Humani Corporis Fabrica*, 1543).   The following year he was called to the Court of Madrid, as physician to Charles V., and abandoned his anatomical studies, never again to resume them.   Vesalius was the first who ventured to expose the errors of Galen, arising, as he said, from the fact of his observations having been made on apes.   This raised a violent opposition to his researches, headed by his old master, Sylvius : but as the young professor founded his criticism upon the observation of Nature, he eventually triumphed.   The blow once struck against the predominance of Galen, was amply followed up by the labours of *Columbus, Eustachius* and *Fallopius*, cotemporaries and friends of Vesalius, and who must share with him the honour of laying the foundation of *Modern Anatomy*.   Dissecting-rooms were now opened, and unclaimed bodies, as well as those of criminals, were given up to the anatomist.   The pontiffs at Rome, who had so long obstructed the progress of anatomy, now took the initiative in forwarding it ;   and thus we find that *Eustachius*, of that city, had an immense number of bodies at his disposal, while Vesalius could only obtain two or three in a year at Padua.   Anatomical plates represented the parts dissected with great accuracy ;   and the anatomical discoveries made were numerous. The true structure of the heart was now first demonstrated, and the recognition of the valves of the blood-vessels, gave the first inkling of the discovery which was presently to immortalize Harvey.

2. *Hygiene* was much neglected during the disturbed condition and the prevalence of extreme religious observances of the Middle Ages ; and for several centuries the dietetic code of the *School of Salerno* enjoyed a reputation which its intrinsic merits in no-wise justifies. The earlier works upon the subject, after the Revival of Letters, were mere compilations from the ancients, and the first we have at all of an original stamp is the well-known treatise on Diet by *Louis Cornaro*, which, according to Hallé and Nysten, has done much to fix the principles and advance the progress of the art. The work of *Mercurialis*, also, upon the *Gymnastics of the Ancients*, although containing no novel doctrines, was of service in awakening attention to observances long abandoned and forgotten.

3. *Internal Pathology.*—The period in which we are now engaged is chiefly remarkable for its reproduction of the ancient authors, and preparing the way for modern discoveries. Upon *Semeiology*, by far the most elaborate writer was *Fernel*. He minutely considers the various symptoms—especially the pulse and urine—not in the synthetical manner advocated by Hippocrates, but in the analytical mode of Galen. About the end of this period a new branch of pathology, destined hereafter to acquire so much importance, under the title of *Pathological Anatomy*, began to be developed. Benirieni, of Florence, laid the first foundations of its study at the end of the 15th century, Eustachius, and other anatomists, following in his footsteps, but not in a sufficiently continuous manner to lead as yet to the establishment of any doctrine. *Nosography.* Of all the treatises of pathology published during this period, that of *Fernel* attained the most durable and universal reputation ; and consisting as it did of a most lucid and complete compendium of the Galeno-Arabic doctrines, it long formed the class-book of entire Europe. On this account, M. Renouard devotes much space to the consideration of his nosological arrangement ; but so defective was this, that we need not follow his example. A servile follower of Galen, he furnishes far less accurate pictures of the various species of disease than did Aræteus, Cœlius, or Alexander of Tralles. Towards the end of the 16th century, a distinguished Swiss, *Felix Plater*, opened up a new æra in Nosography, by attempting a classification of disease, founded upon their sensible characters instead of their supposed essential nature.

4. *Therapeutics.*—As this period was famous rather for a revival of ancient methods of cure than the introduction of new ones, M. Renouard deems it a fitting opportunity to take a parting glance at some of the former, as ably developed in Fernel's work. This author much insists upon the validity of the rule of treating disease by its *contraries*, or, as it is the fashion now to term it, by the *allopathic* method. M. Renouard occupies several pages in demonstrating the fact, which would seem to be obvious enough, that remedies have not been selected because they differ from or resemble in their nature the producing cause of the disease—differences and resemblances which are purely conjectural, and founded upon the most superficial and fanciful observation, but because accident, experience, or analogy has taught us their virtues. The terms, homœopathy, antipathy, and allopathy, are, therefore, expressions indicative of a knowledge of the

properties of remedies and the nature of disease which neither is nor ever can be attained, and their employment should be rejected by all enlightened practitioners as foolish and deceptive. A second precept of Fernel's, respecting the *Expectant* mode of treating disease, is worthy of approbation, as circumscribing this within its just limits. He recommends us, when a disease is obscure in its characteristics and not very urgent in its indications, not to be too hasty in resorting to medicines, but to trust more to Nature and regimen, by the instrumentality of which its true character will often be revealed or even its cure effected. A groping medication is usually injurious, and if your patient compels you to do something, at least avoid by your circumspection doing mischief. A third precept, Fernel considers the capital one, namely, that we must seek for and destroy the cause or causes of a disease before attacking the disease itself, which otherwise is liable to constant reproduction. Many affections are not dependent moreover upon a single cause but upon a series of causes, each of which must be destroyed in the order of its generation. As most of these causes were of a hypothetical character, and endlessly subdivided, the attacking them thus in succession gave rise to the most complex and fanciful treatment.

Fernel recognised but three modes of medication. The Evacuating, the Purgative, and the Alterative. By the first, excess of the humours is disposed of, by the second these are purified, and by the third, parts whose action had become vitiated are restored to their normal condition. He endeavoured to diminish the number of articles then overloading the Materia Medica; and makes no mention of the newly-introduced metals, mercury, antimony, gold, and copper. These substances were, in fact, then in the hands of quacks and charlatans, and prescribed with so little discrimination as to produce oftentimes effects as disastrous as the diseases they were employed to remove. It is not surprising, therefore, that a judicious writer, of the highest authority as a medical teacher, should have felt the necessity of caution.

5. *Surgery.*—The progress of Surgery has been usually in advance of that of internal pathology, in consequence of the greater ease with which external diseases may be observed and treated. During the Middle Ages, however, it fell into a yet lower position than did medicine ; for, while the latter was in the hands of the only educated portion of the community, the priests, it was practised by barbers, bath-men and the refuse of society. Sprengel states that, in Germany, for a lad to become apprenticed in trade, it was necessary for him to prove that his family did not contain barbers, shepherds, bath-men, or skinners—classes who, in that country alone, furnished the surgeons. The rest of Europe was in no better condition, if we except some few doctors in Italy and Guy de Chauliac in France, who imparted a temporary brilliancy to the art. In explanation of this utter neglect of an art so obviously and especially useful, at a period when wars and combats were so frequent, we must remember that the Church interdicted its priests from its practice, in consequence of which it was followed as a purely mechanical employment by various ignorant members of Society. Most of these operators were perambulatory, and each confined himself to some particular class of operations, as cataract, lithotomy,

hernia, &c., often operating by secret processes, which were transmitted as an inheritance from father to son. The elevation of the profession only commenced after the dissipation of the prejudices against dissections; but its progress was very slow until the 16th century, when most of the great anatomists of that period, as Berenger, Vesalius, Fallopius, Fabricius, &c. were also distinguished surgeons; and other distinguished men also joined a profession now become honourable, but no name is so distinguished at the present epoch as that of *Ambrose Paré.*

Paré, born of poor parents, and apprenticed to a country barber-surgeon, was brought, about the year 1532, to Paris by the great desire he felt to qualify himself for the more important duties of the profession. He studied with such earnestness during three years at the Hôtel Dieu as to attract the attention and approbation of its surgeons. In 1536, he joined the army as a surgeon; and relates in his account of the campaign that, being unprovided with the boiling oil, then thought requisite for cauterizing the wounds, he could not sleep for anxiety, and his extreme surprise at finding that the patients deprived of it had suffered less than the others. The doctrines of the day taught that wounds from fire-arms were of a poisonous character, only to be treated by cauterizing them with boiling oil or the red-hot-iron, and the internal administration of alexipharmics. "Chance put him in the way," says M. Malgaigne, "of making his first discovery; but what was not chance was that quickness and depth of judgment, that boldness of resolution, which immediately induced him—a youth without name or influence, and yet more without any literary or philosophical education—to single out and combat a doctrine universally recognised and maintained by the highest surgical authorities of the period." His reputation rapidly increased, and after the campaign of 1543, Sylvius, whose lectures attracted crowded auditories, expressed a wish to see him, and listened with deep attention to his opinions. He entreated him to publish them, and in 1545, appeared his little work on gun-shot wounds, which amply testified that a new epoch had arrived in French Surgery. In 1552, he performed the signal service to humanity of substituting ligature of the vessels after amputation for their cauterization.

He was made surgeon to several successive sovereigns, but, amidst the noise of camps, a large practice, and multiplied occupations, he found time to read all that was published concerning his art, and to compose himself a great number of works. "He enriched almost every branch of surgery with some discovery or improvement, and, so far from imitating the secresy so much in vogue at the period, he freely communicated all he knew, and indeed felt it a matter of conscience to make it public."

6. *Obstetrics* were studied by a few of the principal surgeons of this period, but by none so specially as by *Guillemeau,* pupil and friend of Paré. To him are due the earliest of modern improvements, among which may be especially mentioned the precept of terminating the labour artificially in the cases of great *hæmorrhage* and *convulsions.* Although the *Cæsarean operation* had been known from the remotest periods, it was only employed in ancient times for the removal of a fœtus from a woman recently dead. A law of Numa Pompilius ordains (as indeed does the Catholic Church at the present day) the opening of the belly of every woman dying with a

child in her womb. The earliest authentic example of the operation having been performed on the living woman is not of later date than the fifteenth century.

7. *Clinical Instruction.*—Nothing corresponding to the idea we attach to this term was in force during the Middle Ages. In place of narratives, formed upon the plan of Hippocrates' admirable "Epidemics," we find nothing but sterile disputations upon the principle of life, the essential character and latent causes of disease, &c. Upon the Revival of Letters, even at the period we are now engaged in, the studies were more philological than practical, and that admirable spirit of investigation manifested in some of the ancient writings, now again brought to light, was yet some time in finding imitators. Eventually, however, it did so, as stated in the following extract :

"Nothing proves better how much progress the art of observing and describing pathological phenomena had made progress, than the great number of *new diseases* mentioned by the authors of this period. We read in their writings for the first time of whooping-cough, sweating sickness, scorbutus, plica, raphania, and syphilis. Can we believe that all these affections, some of which so deeply modify the economy, made their irruption upon Europe at the same time ? Is it probable that the changes wrought in the commercial and political relations of nations, the discovery of the New World, long sea-voyages now become so frequent—in a word, the modifications introduced into the public and private hygienic observances by so many events characterizing the epoch—may have given sudden rise to this deluge of new evils? No one, I think, would venture to maintain this. It is more probable, I would almost say it is certain, that the majority of these diseases were of sufficiently old existence ; but that there did not before exist observers sufficiently attentive to discern their proper characters or historians exact enough to describe them.

"The physicians of our own times are divided in opinion only concerning one of these, *Syphilis*. Some incline to the belief that it was spontaneously developed in Europe towards the end of the 15th century ; others, that it was imported from the New World; while the greater number regard it but as a *degeneration of one of the numerous modifications of lepra or elephantiasis* which were so prevalent in the Middle Ages."—*Tom.* II. p. 90.

M. Renouard examines these opinions at considerable length, and expresses his belief in the accuracy of the last-named.

8. *Theories and Systems.*—A mixture of Galenism and Arabism formed the dominant theory of the University Schools of entire Europe. The most distinguished teachers, with some few exceptions, employed their entire sagacity, in reconciling the ancient doctrines—those professed by Plato and Aristotle, Hippocrates and Galen, Rhazes and Avicenna. Of these, *John Fernel*, surnamed the "modern Galen," as we have already mentioned, attained a vast influence among his contemporaries, his compilation from the ancients retaining its authority in the Schools long after his decease.

9. *The Occult Sciences.*—Amidst the general prevalence of the Galeno-Arabic doctrines in the schools of Europe, certain voices might be heard protesting against their reception. These had little influence, having to

propose, in lieu of doctrines which had received the sanction of ages, only the crudest essays and most fantastic lucubrations. The partisans of the *Occult Sciences* were among those who most resisted the yoke of authority.

" Full of confidence in their own powers, they would only receive the law from themselves. Some of them were not deficient in sagacity, imagination, or boldness ; but the majority wanted connection in their ideas, propriety in their language, and dignity in their conduct. Prophets or demons, they had among themselves no community of principles, but lived generally isolated from each other and from the rest of the world, rendering themselves remarkable only by their eccentricities, their contrarieties, and even their misfortunes. Instead of duly guiding the car of reason, these sectarians, who first gave the signal of revolt against received opinions, would have induced its yet farther deviation had the world followed their foolish direction. Nevertheless, we find in their writings some useful truths amidst a load of trashy reveries. They founded no doctrine worthy the attention of philosophers, but, by their declamations, they forced the true *savant* to quit the narrow path of the past, to review the principles of our knowledge, from which revision a scientific reform sprung up during the ensuing period."—*Tom.* II. p. 111.

The first founder of the Occult Sciences mentioned in history is *Cornelius Agrippa*, a man of great and varied acquirements, but possessed of a restless temperament and caustic humour, which prevented his following a fixed and regular life. Sometimes the physician of princes, and at others a vagabond in the face of Europe, or the inhabitant of some of its gaols, he composed a curious and extravagant work upon the Uncertainty and Vanity of the Sciences. M. Renouard, after alluding to some of the extravagances it contains, observes :

"Errors of science, superstitious prejudices, religious exaltation, and the thirst for riches, concurred at the same period to propagate the follies of the cabal ; and never were there seen such numbers of sorcerers, possessed, astrologers, and alchemists, never were prophesies, visions and prodigies of all kinds so common. No remarkable event could occur but immediately it was pretended that it had been announced by this or that precursory sign. How frequently the expectation of the end of the world predicted for a period near at hand, threw entire nations into consternation, and carried anxiety and terror equally to the bosom of the palace as to that of the cottage ! In no country were these cabalistic reveries so universally adopted as in Germany, where mysticism maintained them much longer than elsewhere. Luther himself partook of these vulgar prejudices and superstitions, and contributed much to their propagation. He frequently speaks of his struggles with the devil ; and relates how the wicked spirit would appear to him as a monk and tempt him with captious syllogisms. He blames physicians for attributing to natural causes a variety of evils of which the devil is alone the author.

" The history of the period every where presents the spectacle of the reign of darkness struggling with nearly equal power and success against that of light and truth."—*Tom.* II. p. 118.

Jerome Cardan was another of these eccentric beings possessed of vast abilities, but lost to the world for want of due regulation and guidance. " His immense acquisitions," says M. Dezeimeris, " his extraordinary sagacity, his great freedom of thought, and his masculine and elevated style, would have placed him at the head of the most justly celebrated writers of the 16th century, had he not united to these qualities so confirmed a taste for paradox and the marvellous, a childish credulity, a scarcely conceivable

superstition, an unsupportable vanity and unlimited boasting." But of
all the professors of occult science, the most famous was indisputably

Paracelsus.—Still, famous as he was in his day, we think M. Renouard
has occupied too large a space in refuting his errors and absurdities. Cer-
tainly he may find good excuse for this in opposing the views of an ob-
server generally so accurate as M. Malgaigne, but who, in regard to Para-
celsus, captivated by some of his expressions in approval of the exercise of
observation, (which, however, he never himself put in force,) sees much
cause of admiration that even a superficial examination of his writings on
medicine must at once dispel. Indeed, the only ground for notice Para-
celsus can claim, is his popularizing the employment of various mineral pre-
parations, now among the most powerful agents of our materia medica.
But, whatever good may have eventually resulted from this, it is impossible
but that the indiscriminate and careless use of these potent instruments in
the hands of himself and successors, must have led to much and dire mis-
chief. To this topic we shall return in our notice of Gui Patin's letters,
in which it forms a frequent theme. In the mean time, we may conclude
this part of our subject with a quotation borrowed by M. Renouard from
Sprengel.

"A revolution which has Mysticism for its basis will find much easier access
among the common race of men than one founded on good sense, because the chi-
mera of the imagination are always presented in the most vivid colours, and exeite
the mind much more than the severe deductions of cool reasoning. In the 16th
century, Germany enlightened entire Europe by her reforming spirit. The great
genius of Luther rendered to his cotemporaries and to posterity the inappreciable
service of striking a death-blow to the mysticism of catholicism and the scholastic
philosophy. Paracelsus adopted the same plan; but the following circumstances
prevented his system being received with the same favourable and general recep-
tion as that of the theological reformer.

"1. Medicine is a science of experience which must be learned to be known.
It reposes on reasoning and the deductions of experience, and consequently any
doctrine which rejects the testimony of reasoning and represents experience as
useless, can never meet with much success among physicians. 2. The system of
Paracelsus was not only based upon mysticism, but upon the grossest fanaticism.
In fact, superstition reigned tyrannically throughout the course of the 16th centu-
ry; but to endeavour to give these very prejudices the appearance of scientific
doctrine, was an idea too revolting to common sense to be generally adopted. 3.
Lastly, Paracelsus was not the man to secure success for his system. He was a
barbarian, an ignoramus, who despised every science, just because he was totally
unacquainted with any. Although he spoke much of the divine light the source of
all knowledge, his manners and vagabond life furnished no proof of his participat-
ing in it.

"Nevertheless, his doctrine found, and especially in Germany, more partisans
than would have been supposed. According to my calculation, three-fourths of his
successors were Germans, but most of them were persons entirely destitute of edu-
cation, and ignorant of science, who cast themselves into the midst of his mystical
system just because it seemed to conceal their want of instruction and inaptitude.
Others employed the medicaments and arcana of Paracelsus, endeavouring to re-
concile his theory with the system of Galen; while, lastly, the Rosicrucians applied
it in a much more precise manner than had hitherto been done to theology and
philosophy."—*History of Med.*, Chap. III.

8. *The Reformatory Period.*

[Comprehending the 17th and the 18th Centuries.]

" We have just seen the systems of Aristotle and Galen resist the premature attacks of the partisans of the Occult Sciences, and enlist the majority of intellects, save some partial modifications impressed upon them by less bold and more sensible innovators. The long duration of these systems, the almost unanimous agreement of the great men of antiquity and of the middle ages in their favour, formed them into the most respectable of precedents, which as yet was disdained but by few. It is no-wise astonishing, then, that the most eminent men of science should prefer them to the crotchetty and ill-elaborated theories of the contrivers of the occult doctrines—those restless, capricious, and haughty spirits who attempted to arrogate to themselves the sceptre of knowledge, without having taken any pains to ripen a plan of scientific reform, whose wisdom and grandeur might justify so high a pretension in the eyes of enlightened men.

" Nevertheless, the domain of the natural sciences became enlarged from day to day. During the two last centuries, observation had enriched it with a multitude of new facts which ill squared, or squared not at all, with accredited doctrines; and the time approached when the necessity of a radical reform was felt in almost every branch of human knowledge. Men, whose learning equalled their genius, are about to appear to direct this intellectual movement, and to substitute, for the decrepid theories of the schools, newer and more powerful ones, better harmonizing with the range of ascertained phenomena. To the worship of the ancients is about to succeed an immoderate desire of shaking the yoke of their authority, to, as it were, avenge their prolonged tyranny. This is why I have termed the period *Reformatory*—a term which, if I mistake not, perfectly characterizes the general tendency of mind, the predominant idea, and the prominent fact of the epoch."—*Tom.* II. p. 156.

At the commencement of this period *Galileo* opened the way for the regeneration of physical science, and following the rigid spirit of observation, in place of the fashionable subtleties of the day, he became the parent of several discoveries, any one of which would have served to immortalize him. " The bold and happy hypotheses of *Kepler* also opened up the way of the heavens to Newton." Naturalists now freely availed themselves of the aid afforded by the miscroscope; while a new race of chemists, abandoning the dreams of alchemy, and adopting experiment as their guiding star, were among the most potent adversaries of the old philosophy. Theories in medicine were now no longer received on account of the ingenuity of their conception, and not only did Galenism, but several new systems as well, receive their death-blow; for, " although these last had been devised and sustained by men of superior merit, they all erred in considering the phenomena of the animal economy only under some of its points of view, neglecting others just as important. All, too, erred in the no less grave error of exceeding in their abstractions the limits of sensible phenomena. This is why they all vanished, or became entirely modified, after enjoying a more or less ephemeral reputation."

M. Renouard, as in the former periods of this history, but at much greater length, reviews the state of medical science at this epoch, casting a retrospective glance from time to time at the steps by which it has arrived at so improved a condition. We can only sparingly follow him, as we are desirous of alluding, also, to the various novel theories which so remarkably characterized this period of intellectual activity and learned research.

1. *Anatomy and Physiology.*

The anatomists of the 16th century had so accurately described all the most obvious parts of the frame, that little remained for their successors to accomplish in this respect; but, directing their attention to minute and comparative anatomy and to experimental physiology, they reaped some most excellent discoveries.

The Circulation.—According to the ancient doctrines, the liver was the organ of sanguification, and there the veins, they being the only vessels which contained blood, took their origin. The blood was supposed to be sent to and return from all parts in these same canals, by a sort of undulatory movement. The arteries were stated to contain the vital spirits, whose great reservoir was the heart. Galen modified this doctrine by showing that the arteries likewise contained blood. He was aware, too, that this fluid was brought by the large veins into the right cavities of the heart; but he maintained that, while a small portion passed to the lungs by the pulmonary artery, the great mass penetrated the pores of the septum into the left ventricle. This opinion was uncontested until the time of *Servetus* in the 16th century, who denied the passage of the blood through the septum, and maintained that it passed through the lungs by the pulmonary artery, and was returned to the left ventricle by the pulmonary veins. *Columbus* soon after proved this to be correct by anatomy, and explained the true use of the cardiac valves. *Cæsalpinus* added that the minute arterial ramifications communicated with the veins in the lungs. The existence of valves in the veins was already known;·so that it seemed to require, at the commencement of the 17th century, but one step for the discovery of the circulation—a difficult one however. *Harvey* attended the lectures of the celebrated Fabricius de Aquapendente at Padua during four years. The venous and cardiac valves were demonstrated by the unconscious professor to his young pupil, thus casting a germ into his fertile mind which years after was to spring up and flourish into the goodliest tree of science. His first announcement of his discovery was in his lectures at the College of Physicians in 1615; but not until 1628 did he consider his observations sufficiently mature for publication. "England," says Haller, "had contributed nothing to anatomical science, when, behold, a man appears, whose discoveries constitute the only grand epoch in its history since the days of Hippocrates." M. Renouard does justice to the admirable course which Harvey adopted, both in pursuing and confirming his investigations, and in meeting the vehement opposition he triumphantly contended with. We are loath to mar so important a theme by a mere incidental allusion; but certain we are that no greater service can be done our profession, and especially the younger members of it, than the taking some more fitting opportunity for exhibiting in detail the lessons deducible from the example of this truly great man.

"This theory, which now appears to us so natural," says M. Renouard, "that we can hardly understand why it was not discovered long before, was however nothing less than a revolution in physiology." Truly so; and we may compendiously say, that a principal occupation of subsequent physiologists and physicians has been to multiply proofs of the truth of the doctrine, explain the mechanism of the various structures concerned,

and direct its practical applications to the prevention or removal of disease and the relief of accidents. *Malpighi*, with the aid of the microscope, demonstrated the actual progress of the globules in the small vessels; and *Leuwenhoek* traced the same, before numerous witnesses, into the minutest ramifications. In 1749, *Senac* published his great work on the Heart, and its Diseases, which excited so much the admiration of his cotemporaries, and especially of Morgagni. His ideas upon the cause of the movements of the heart were fanciful in the extreme ; but the diagnosis of its diseases received all the perfection it was capable of, prior to the discovery of auscultation and percussion.

. 2. *Respiration*.—Prior to the 17th century, it was believed that the air which penetrated into the bronchial ramifications was in part subtilized and conveyed by the pulmonary veins to the heart for the fabrication of the vital spirits, and in part exhaled with the fuliginous matters of that organ during expiration. In this way the lungs were cooled and freed from the danger of their proximity to the heart, the centre of animal heat, and an æther or pneuma provided as a source of the vital spirits. The discovery of the circulation destroyed the basis of this theory : and in 1661, Malpighi demonstrated the cellular structure of the lungs. Borelli, Helvetius, Haller, and others, made numerous experiments upon the manner in which the inspiratory and expiratory movements of the chest are effected, and established the facts as they are now received. Various pneumatic theories were invented, but were unable to hold their ground after the discovery of the changes which the air underwent during respiration. Mayow's experiments in 1668 opened the way for future observers, and *Lavoisier*, towards the end of the 18th century, presented us with his chemical theory, so seductive by its simplicity. With this of course our readers are familiar, as with the objection derivable from the influence of the nervous system not having been taken into account. M. Renouard takes no notice of Dr. Adair Crawford's important Essay, so confirmatory of *Lavoisier's* views.

3. *Lymphatic System*.—Herophilus and Erasistratus had seen white vessels in the mesentery of some animals, and mistook them for arteries full of air. Galen, who never saw them, regarded the observation as chimerical, and taught that the veins of the mesentery absorbed the chyle from the intestines, and carried it to the liver, where it was transformed into blood; and his opinion was dominant until the middle of the 17th century. Eustachius had, in 1563, described the thoracic duct in the horse, without however ever suspecting its use. In 1622, *Gaspard Aselli*, dissecting a dog which had been killed shortly after feeding, observed several white filaments in the mesentery, which he mistook for nerves. Having accidentally pricked one, he was astonished to see a creamy fluid flow out ; and a repetition of the examination in other dogs enabled him to establish the existence of the *lacteals*, as also of their valves. He believed they all went to the pancreas, and thence to the liver, which was then the acknowledged organ of sanguification. In 1647, *Pecquet*, while yet a student, discovered the *thoracic duct*. He also showed that the lacteals did not go to the liver, but emptied themselves into this reservoir—thereby inflicting the final blow

upon the doctrine which for ages had declared the liver the organ of hæmatosis. The investigation of the *lymphatic* glands and vessels henceforth occupied the attention of a great number of celebrated anatomists, as Vesling (who indeed discovered the thoracic duct about the same time as Pecquet), Bartholin, Ruysch, Rudbeck, the Hunters, Hewson, Cruickshank, and Mascagni, who published (1787) the first plates of the entire lymphatic system.

4. *The Nervous System.*—Hippocrates and his successors in the School of Cos possessed no precise idea of the functions of the nervous system, confounding, under the name of nerves, ligaments, tendons, and the nerves themselves ; and it would seem that to Herophilus, the famous professor of the School of Alexandria, is due the earliest correct notions upon the subject. He describes three sorts of nerves ; the first, which serves for the sensations and voluntary movements springing from the brain and spinal marrow ; the second and third being destined to unite the bones together, and these to the muscles. Herophilus thus had not entirely thrown off the old error of confounding nerves and tendinous structure, and Galen was not exempt from similar views. He describes the brain and its membranes with accuracy, stating his belief that the cerebrum is the seat of the mind, and the origin of the nerves of sensation, while the cerebellum and spinal marrow give rise to those of voluntary motion. He maintains, however, that the extremities of the nerves are expanded into ligaments, membranes, and tendons ; and places the sense of touch in the membranes covering the muscles, which have indeed, from their supposed origin in the nervous substance, received their name of *aponeuroses*. The anatomists of the 16th century described the distribution of the vessels and nerves with more accuracy ; but most of the ancient errors on sensation and motion continued to prevail ; and even in the 17th century Baglivi derived all vital movements from the heart and dura mater. The researches of Vieussens, Haller, Meckel, Vicq. d'Azyr, Soemmering, &c., during the last century, however, sufficiently demonstrated the true functions and structure of the organ. The opinions which attributed important functions to the dura mater, and the derivation of membranes from nervous ramifications, were proved to be destitute of foundation. It was shown that the medullary pulp of the nerves of the senses receiving the impressions transmitted them to the brain. The ancients had been more complex in their contrivances, and believed, as taught by Empedocles, that an elementary affinity prevailed between external objects and the organs of the senses—each organ possessing its element capable of attracting similar molecules of external bodies. The eye, for example, being of a resplendent nature, attracts the luminous molecules of bodies ; the ear of an airy nature, those which are sonorous, &c Galen only added to the hypothesis the doctrine of spirits which were secreted by the brain, and transmitted to the organs of sense, visual spirits to the eye, where they entered into contact with the luminous particles of bodies, &c. Such were the ideas which prevailed even to the 17th century. At that period Kepler showed the crystalline lens was not, as believed until then, the organ of vision, but an instrument for refracting the image of objects upon the retina ; and Scheiner demonstrated this expansion to be the

true organ of sight.   The researches of Newton on light and colours much contributed to the establishment of a true theory of vision.

The *functions* of the nervous system have much occupied the attention of the moderns.   Some have regarded the nerves as delicate tubes containing a subtle fluid, which, receiving the impressions of objects, transmits them to some central point of the encephalon.   Others look upon the nervous fibrils as cords springing from a common centre.   Bonet revived the hypothesis of Hartley, which supposes every nerve to contain as many distinct fibres as it receives different sensations.   Thomas Willis first assigned special functions to various portions of the brain, as common sense to the corpora striata, memory to the cortical substance, &c. Cabanis likened the functions of the organ to those of other viscera, it producing all the operations of the intellect, just as the stomach and intestines accomplish the digestion of food or the liver secretes bile.   All these were mere hypotheses ; but others founded their opinions upon observation, as Camper, in that which he estimates the mental development by the facial angle.   Pinel, from his observations upon the insane, came to the conclusion, that the various faculties of the brain must have a special affection to a special portion of that organ ; and it was at the end of this period that Gall commenced announcing the results of his prolonged investigations.

5. *Generative System.*—Galen described the male apparatus with accuracy, and recognised the analogy of the organs of the two sexes—the male organs being developed externally by the heat of the temperament, while those of the female were retained within by reason of her natural coldness. He called the ovaries the female testicles, and believed they secreted a fluid during copulation analogous to the semen of the male.   Dissecting only animals, he believed the uterus was divided into two cavities.   The male and female semen becoming mixed in the womb, the latter serves for the nourishment of the other, and for the production of one of the fœtal membranes.   The male semen is almost at once converted into membranes, some of which afterwards become expanded and hardened, and modulated into the various parts of the fœtal frame.   With Hippocrates, Galen believed the right testis furnished the material for male ova, the left for female, the female embryo always becoming developed in the left, and the male one in the right cavity of the uterus.   These views remained entirely unchanged until the 16th century.   Even then the chief anatomical errors of Galen only were rectified ; and it required the successive investigations of Fabricius, Harvey, and De Graaf to bring our knowledge of the true structure of these organs to its present state.   As to the theories of generation, which may all be reduced to the two principal hypotheses of epigenesis and evolution, M. Renouard observes that, after the endless disputations it has led to, the question is as undecided as ever.

6. *The Vital or Organic Properties.*—Philosophers and physiologists of all periods have agreed in recognising under the term essence, nature, soul, spirit, pneuma, &c., the existence of a primary intrinsic power presiding over the various functions of the body—as well as that of the physical and

chemical properties in common with inanimate matter. Different observers, however, attached different degrees of importance to these.

"Some were especially attentive to the intrinsic force, studying with care its tendencies, and scrupulously following its indications : they were termed *Hippocratists*. Others, the *Humorists*, of whom Galen is the chief representative, had especial regard to the elementary qualities (heat, coldness, &c.) of the humours. Others, again, only took into account the physical qualities of the solids, and especially their porosity and the power possessed by the various tissues of dilating or contracting. These were the *Methodists*. The *Empirics* disdained all physiological considerations, in which they were wrong, as in so complex a study as that of disease we should avail ourselves of all the light any branch of science affords. They might, however, have thus addressed other sectarians :—
' You are aware that the phenomena of the animal economy are the product of three descriptions of forces, and yet you direct your attention exclusively to one of these, reckoning the others for little or nothing. But examine any function, the secretion of saliva for example—is it not evident that the vital, the physical, and the elementary or chemical forces, are here acting in unison ? and who can say the exact part which each takes in the act ? No one ; and it is impossible to form an exact idea of the function as long as we separate by a mental analysis the forces which concur to its production. We must study it as it presents itself to our observation, synthetically and experimentally.'
"At the revival of science the old physiological systems were re-produced under different forms. The *Iatro-mathematicians*, versed in the calculation of physical forces, professed to explain the functions of the economy by the laws of mechanics. They saw only in the circulation, the secretions, nutrition, &c., the effects of the elasticity of tissues, the size of vessels, the friction of their contents, &c. The *Chemical Philosophers* gave exclusive consideration to the mixtures of the chemical elements, and spoke only of acid or alkaline humours, gases, salts, fermentations, &c. The *Hippocratists* regarded only the influence of the intrinsic force of the living body which they named *archæus*, vital principle, &c. From this it is evident that physiologists recognised no difference between the properties of organized and inorganic matter; and, to explain certain acts of the economy, had recourse to the intervention of an immaterial or quasi-immaterial substance, as the soul, archæus, &c. They were ignorant of the *vital forces* properly so called."—*Tom.* II., p. 192.

Towards the middle of the 17th century, however, *Francis Glisson* admitted in the living solids a special force, with which all tissues are endowed in different degrees, and which he believed sufficed to explain all the vital phenomena. This he termed *Irritability*. His views were neglected and forgotten for more than 60 years, when they were revived by De Gorter. Irritability was, however, confounded with elasticity, until *Haller* (1747), by a series of most ingenious experiments, raised Glisson's hypothesis into an established fact ; and clearly defined the differences between this vital contractility and mere contractility of tissue. Between 1757 and 1766 he published his unrivalled *Elementa Physiologiæ Corporis Humani*.

"Throughout the whole of this work he proceeds with his ordinary circumspection, advancing nothing that is not capable of support by well-ascertained facts, and according to hypothesis the smallest possible space. Rich in a multitude of original observations, and displaying a vast erudition, this work constituted an imperishable monument in the science of life. Dating from this epoch, physiology claims a separate existence from physics and chemistry, it having been demonstrated that life has its laws and special forces, which must be studied in an entirely peculiar manner."—*Tom.* II., p. 194.

The truths proclaimed by Haller keenly attracted the attention of the learned. *Fontana* was one of the most skilful of the defenders of the new doctrines, and *Bordeu* applied them to the explanation of the secretions, the variety of which he attributed to the specific sensibility of the different glands. *Fabre* first applied them to pathology in refutation of Boerhaave's mechanical theory of inflammation. "Haller had only demonstrated the existence of irritability in muscular fibre. His disciples admitted the property in other parts; but its existence in every tissue had yet to be proved by experiment and severe analysis. Its forms and degrees had yet to be exhibited—in a word, the theory of the vital properties required systematizing and extending to every function; and this task was undertaken with as much genius as boldness by the celebrated *Bichat*." In the mean time, Hunter's beautiful experiments had fully established the vital properties of the blood; and various other writers had contributed to the progress of anatomy and physiology during this period, especially Winslow, Albinus, the Monros, Douglas, Vicq d'Azyr, &c., &c.

2. *Hygiene.*

During the period we are now occupied with, the subject of Hygiene much engaged the attention of physicians, philosophers, and statesmen. Its consideration is divided by M. Renouard into two sections, the one treating of *Public Hygiene*, the other of *Personal Hygiene*. Under the first of these headings he passes briefly in review the gymnastic exercises of the Greeks, the architectural contrivances of the Romans for securing the salubrity of their towns, the leper hospitals of the Middle Ages, and the establishment of lazarettos in the 17th century; he adverts to the improvements in the health of prisoners, soldiers, and sailors, which have resulted from the labours of so many philanthropists and physicians; and, lastly, gives some account of the discovery of vaccination by Jenner.

Among the works on *Personal Hygiene* which the period produced, the "De Medicinâ Staticâ Aphorismi" of *Sanctorius*, in which he details the elaborate series of experiments he performed upon the transpiration of the body, deserve especial mention from the celebrity they acquired.

" This publication was received as a revelation, a true code of hygienic laws. Its author was saluted as a second Hippocrates, and his sanitary maxims placed on the same level or above those of the 'old man of Cos.' His salary as professor at Padua was continued to him after he had quitted Padua, and a statue was erected to him at Venice, where he died in 1636.

" Yet, if we submit his work to severe criticism, we find it faulty in several respects. His conclusions are too general and absolute; for, from experiments made upon one individual in one climate, he draws inferences to be applied to every person in all kinds of climates. Moreover, many indubitable sources of error were mixed up with his calculations. Thus, he makes no account of the pulmonary exhalation or absorption or of the cutaneous absorption. Lastly, many observers in different countries having repeated Sanctorius's experiments, have obtained very variable results. Whence it appears that there is nothing so mobile as the cutaneous transpiration, and that the design of estimating its quantity is, as Bichat says, as vain as to pretend to specify the volumes of water which are hourly vaporized from a source whose energy is varied every instant. The only general conclusion we can draw from these experiments is, that in the state of health this excretion is ordinarily very abundant, that it diminishes in old age,

and that in all cases it merits the attention of the physician as well as of the physiologist. If, therefore, the ' Aphorisms ' do not justify the enthusiasm their appearance excited, neither do they merit to be so utterly neglected as they are at present. Boerhaave, whose opinion should carry some weight, declared that no other medical work was so perfectly executed; and Lorry has added commentaries to it worthy of perusal at all periods."—*Tom.* II. p. 210.

The works of Cheyne, Fischer, Rammazini, Lorry, Juncker, Beddoes, Hallé, Tissot, Sinclair, &c., &c., were also among the most celebrated of those devoted to hygiene appearing during this period.

3. *Pathology.*

" Pathology, during this period, was viewed under very different aspects, which we can only here summarily indicate, as we shall have to speak of them more at large when treating of the various theories. Some made the humours play the principal part in the generation of disease, conformedly to the modified Galenical doctrines, or of the new chemical ideas; others only saw in every morbid disorder some error or disturbance of the regulating principle of the economy which they termed archæus, soul, nature, vital principle, &c.; others considered diseases as a dynamical derangement of the action of the solids; and, lastly, some rejected all consideration of causes and phenomena which did not fall within the cognizance of the senses, and decided to confine themselves to simple observation. From these different modes of viewing diseases, very varied pathological classifications resulted, and in the end a much more profound and complete acquaintance with morbid conditions."—*Tom.* II. p. 213.

Semeiology.—Several physicians of this period made some one symptom the subject of special and abstract study. The variations in the amount of transpiration especially occupied the attention of Sanctorius, and several other observers paid the same minute attention to the conditions of the *pulse.* Among these, *Bordeu* endeavoured to attach all the shades of health and disease to certain determinate varieties of it, creating in this way endless subtle distinctions, of doubtful reality and of no practical value. At about the same period (1761) *Avenbrugger* published his work upon *Percussion*, but which met with little attention, until translated and commented upon by Corvisart, in 1808.

Pathological Anatomy, from the commencement of the 17th century, made rapid strides, under the guidance of Bartholin, Tulpius, Ruysch, &c.; and the now immense number of observations were collected, examined, and classified by *Bonet*, in his *Sepulchretum*, published at Geneva, in 1700, an imperfect and confused work, but which, however, furnished the idea of his Anatomico-pathological Letters to the immortal *Morgagni*, published in 1762.

" In fact, he only proposed to himself, in composing these Letters, to amend, and in some sort refound, this work of Bonet. Profiting by the riches which science had acquired in the interval, and especially by those which his master, Valsalva, had amassed, and joining to these an extensive erudition and a severe critical spirit, he established order and clearness where the author of the *Sepulchretum* had left confusion and darkness. He showed himself original without having the pretension of being so, contrary to so many others who possess the pretension without the reality. He disguises nothing that he borrows, whether from the dead or the living; but what he borrowed from no one was the selection and judicious employment of his materials, and the wise and luminous discussion of facts. Persuaded that medical science can only progress by the light of obser-

vation, he scrupulously avoids losing himself amidst vague interpretations; so that the idea quoted from the Odyssey in his preface may not be applied to himself, 'He has told much untruth in relating what is seemingly true.' "—*Tom.* II. p. 221.

From the period of the publication of Morgagni's " *Epistolæ,*" in 1762, to the end of the 18th century, a great number of enquirers diligently occu-
* pied themselves in anatomico-pathological researches, as Walther, Sandifort, W. Hunter, Greding, Lieutaud, Portal, and, above all, *Xavier Bichat*.

" Uniting to a genius eminently adapted for generalizing, an admirable talent for observation and analysis, he shed not only on pathological anatomy but on entire pathology a bright light, whose rays guided the labours of the majority of his successors. The idea of decomposing the animal body into elementary tissues, which present in every part where they are found the same properties, and are liable to the same changes, has been the parent-idea which, for sixty years, has served as the basis of the researches of pathologists."—*Tom.* II. p. 222.

Nosography.—Although the Hippocratic writers acknowledged the division of diseases into epidemic, endemic and sporadic, and into acute and chronic, yet they did not always observe this very strictly ; and it was only after the foundation of the Alexandrian School, and under the influence of the peripatetic philosophy, that any attempt at a systematic order was observed.   Diseases were divided into external and internal, general and particular.   The general diseases were supposed to affect the entire economy, without having any determinate seat, as fever, gout, syphilis, poisoning, &c., while the particular diseases were seated in one of the three great cavities of the body.   To the classification of the Methodists we have already alluded.   That introduced by *Plater*, at the end of the 16th century, does not seem to have exercised much influence, as, long after, writers upon medicine, such as Morgagni, Sennertus, &c., still followed the ancient methods.   Towards the end of the 17th century, naturalists had made great progress in the classification of the objects of their studies, and *Sauvages*, a young physician of Montpelier, after consulting with Boerhaave, published, in 1732, his *Nosology*, constructed upon the principles recognised by the botanists.   It excited little attention until some thirty years after, when its author, having revised and enlarged it, republished it as his *Methodic Nosology*.   It then acquired the highest renown, in proof of which, it was the only work employed by Linnæus in his lectures at Upsal for twenty years.   " Whatever discredit this description of works may have fallen into in our times, the Nosology of Sauvages will always worthily employ the attention of those who like to follow the progress and development of a science so difficult as pathology.   Besides forming the first of a series of interesting productions, it offers the most complete collection of descriptions of disease, and observations collected from all sources, hitherto published."

Our own Sydenham had long before expressed his desire that a history of diseases might be written, disengaged from all hypothesis, in which the only object should be the exactly tracing the sensible phenomena and the distinguishing morbid species by their constant and essential symptoms. But although Sauvages entertained the highest veneration for him, terming him the glory of England, and the light of our art, he was far from strictly

following his counsel, too often mingling with his histories of disease vague theories and hypotheses concerning their causes and nature. When his System, too, was more calmly examined, it was found that the multitude of genera and species he had created tended only to induce confusion in diagnosis, not being separated from each other by sufficiently well-defined and constant symptoms. Numerous physicians endeavoured to improve upon his plan, but it was not until the *Nosology* of *Cullen* (1785) appeared that any true progress was really made. "This much reduced the number of species, and distinguished them by better defined and less variable characters. It presented then a real improvement upon that of Sauvages, and obtained a universal vogue, which it maintained until the publication of the *Nosographie Philosophique of Philip Pinel*, in 1798. This eclipsed all the preceding ones, and soon became classical throughout Europe. Six editions within twenty years testify to the confidence it has enjoyed." Pinel divided diseases into six classes, 21 orders and 84 genera. His classes are—1, Fevers; 2, Phlegmasiæ; 3, Active Hæmorrhages; 4, Neuroses; 5, Diseases of the Lymphatic and Dermoid Systems; 6, Undetermined, comprehending genera which are not sufficiently connected to link into general orders. In the last edition, the two latter classes have been reduced to one, under the title of Organic Lesions.

"Sprengel, writing at the commencement of the 19th century, speaks of Pinel and his Nosographie in the following terms: 'Faithful to nature and experience as Hippocrates, whom he constantly takes as his model, and formed by the study of the best works on medicine at all periods, Pinel has taken his place among the most skilful and learned physicians of our times. His work is a true masterpiece, as much from the excellent plan he adopts as from the depth and impartiality of his judgments.' "—*Tom.* II. p. 234.

Besides the Nosologies adverted to, others were published by Linnæus, Vogel, Macbride, Sager, Darwin and others: but these require no specific notice, as possessing no authority. "Sauvages and all the other nosologists, not excepting Pinel himself, although approving of Sydenham's advice, of recording only the constant phenomena and sensible characters of disease, all fall more or less, under some pretext or other, into the error of occupying themselves in searching for the occult causes of disease." The *Precis de Medicine* of *Lieutaud* is cited as a remarkable exception to this stricture.

"The mere avoidance of hypothesis, however, will not alone constitute a good nosology. Exact and detailed descriptions of each morbid species is a primary requisite. Too brief descriptions engender obscurity, which after error is the greatest defect in this kind of work. Classifications may vary without end, depending as they do upon the manner in which an author views his subject, and diseases, being very complex objects of study, may be viewed from many points of observation. But descriptions of each morbid species, when well made, preserve their value independently of all changes in classifications and systems; this has occurred to the histories of Hippocrates, of Aræteus, of Alexander of Tralles, and of all great observers."—*Tom.* II. p. 338.

4. *Therapeutics.*

The old and erroneous maxim of the remedial agency of the contraries was revived under new forms in this epoch, during which, also, various new

maxims and modifications of old ones were broached : but, as these were all more or less connected with some physico-pathological system, their consideration may be delayed until these come under notice, and, in the mean time, M. Renouard briefly passes in review some of the ameliorations in the treatment of disease, as exhibited in the management of Small-pox, Syphilis, Intermittent Fevers, &c. which were achieved, and the new remedies, such as tartar-emetic, mercury, bark, ipecacuanha, belladonna, digitalis, &c., which were introduced.

" An important remark to be made is, that these great improvements were not made by virtue of, but in spite of dominant theories, these having, indeed, proved the greatest obstacles to their adoption. If mercurial medication was so long carried to the extent of a mischievous salivation, we must accuse the Galenic theory, according to which the virus of the disease circulated with the humours of the body, requiring evacuation for its expulsion. What was the reproach which the adversaries of Cinchona addressed to it ? That it produced no sensible evacuation. As, in their opinion, founded on the authority of Hippocrates, Galen and others, the proximate cause of fever could only be vitiated bile or phlegm, no medicine which expelled neither of these humours could radically cure it. The Stahlians made a still more specious objection. They declared that fever, being a natural and salutary effort of nature to rid herself of a hurtful matter, the cutting short a paroxysm was to act controversive to the vital principle, and in the end to do more harm than good. If vaccination itself encountered opponents, is not this because the Arabs, who first described variola, propagated the opinion that the disease was innate in man, and concluded that the prevention of its spontaneous development was to oppose the endeavours of nature, and to imprison the enemy within our walls.

" From the avowal of all, therapeutics has owed the progress we have described to the purely experimental method, that is, to *empiricism ;* not the ignorant and blind empiricism of charlatans, medicasters, and pharmacopoles, who, acquainted with the name of a disease, at once supply the drug required; but to enlightened and methodical empiricism, surrounded with all the positive indications derived from physiology, pathology, and the accessary sciences—to the empiricism of Sydenham, Morton, Torti, Van Swieten, Lieutaud, Stoll, Jenner, &c.—to that empiricism for which Sprengel so frequently apologises." (See Chap. 2 and 3 of his 16th Section especially).—*Tom.* II. p. 254.

5. *Surgery.*

Although the 16th century produced some names of note in Surgery, these were but exceptions, and this branch of medical science made little additional progress until towards the end of the 17th, from which period, through the whole of the 18th century, France, England, and Germany continued to produce names of imperishable celebrity. A great impulse was given to its study in France, by the foundation of the *Royal Academy of Surgery*, in 1731; but it is to our own JOHN HUNTER we are indebted for its elevation to the dignity of a science. Upon this point, we may quote the following passages from M. Malgaigne's Essay.

" If he suffered during his entire life from the absence of those preliminary studies, without which it is so difficult to impart to reasoning all its force and clearness of expression, we must at least do him the justice of testifying that he neglected no means of giving himself an education, and such a one as he deemed most suitable for the objects he had in view. Perhaps, too, strongly determined to consult only experience, he felt somewhat embarrassed in determining what part of our art he could most profitably apply his experience to. It is curious

even to follow him in his efforts and hesitation. Anatomy had proved, in the hands of J. L. Petit, a powerful instrument of progress in surgery. John Hunter attached himself to its pursuit, consecrating to it ten years of his life; and, after having drawn from it some rich views, such as his theory of congenital hernia, perceived that he had mistaken his route and returned. What human anatomy could not furnish him with, perhaps he might find in the study of comparative anatomy. In this he engaged with renewed resolution, maintained a menagerie at his expense, stole hours from the night to expedite his dissections, and thus accumulated with his pen and pencil the anatomical history of three hundred and fifteen different species. But comparative anatomy not even serving his ends, a new ray of light broke in upon him. The subject is too often dumb, and he determined to interrogate the living. He instituted experiments upon animals, and thus created that fertile instrument of verification and progress, experimental surgery. Then, as he knew better than any other what differences separate man from the inferior beings, he recognised the necessity of controlling his experiments by direct observation on the living and dead man, and founded *Surgical Pathological Anatomy.* He resolutely approaches the fundamental question, from which J. L. Petit himself had shrunk, and enquires where are the bases and principles of surgery. Fear not that he will lose his time in merely examining the hypothetical theories of Boerhaave or of any one else. He does not even deign to mention them, and they are for him as if they had never existed. It is in the region of pure observation that he professes to delve, and it is there he hopes to lay foundations which shall prove indestructible.

"A curious comparison of dates may here be mentioned. The Royal Academy of Surgery, in 1774, published its last volume of Memoirs, and in 1775 Hunter commenced his celebrated course of lectures on the Principles of Surgery. Thus, during the whole period that the school of Petit was declining, the English surgeon was occupied in preparing the way for his own; and scarcely had the one lapsed into silence, before the other raised its voice and seized the noble inheritance. A memorable epoch, well worthy of celebration! Surgery, as the Middle Ages had left it, was little else than a handicraft: A. Paré and J. L. Petit made an art of it; and John Hunter constituted that art into a science.

"It is to Hunter, in fact, that we owe those general principles, which, regulating all portions of the art, and connecting them to each other, have made of it a magnificent whole, and which furnish, at the same time, so much strength to its doctrines and safety to its practice. It is Hunter who has made the surgeon, in the beautiful language of Bacon, the interpreter and minister of Nature. It is he who has revealed to us the procedures she follows in the cure of most surgical affections, and has taught us how to direct her operations. The union of simple wounds—the nature of suppuration in the more complicated ones—the various phases of cicatrization—the varieties of inflammation, (that fortunate or redoubtable phenomenon according to whether we maintain it within due bounds or abandon it to its violence)—these are some of the subjects which Hunter has treated with an unrivalled superiority. All his views in these respects have so completely passed into the common domain, that the majority of surgeons put them into practice, in the idea that they have at all times been recognised, little dreaming of their recent origin. But take away from our classical treatises all that can legitimately be referred to Hunter, and you will see what an immense breach you have made, and how vast is the position he has created for himself in surgery."—*Bulletin,* p. 186.

M. Renouard details at considerable length the histories of the various surgical operations; but our limits quite preclude our following him.

6. *Obstetrics.*

The obstetrical division of medical science long continued in arrear of

the other branches, being for the most part in the hands of ignorant women. One of these female practitioners, however, more enlightened than her *consœurs*, set an example, which has been followed by some illustrious members of the sisterhood in our own times, of publishing, at the beginning of the 17th century, an account of her experience ; but it was not until 1666, when the first edition of Mauriceau's work appeared, that the art of the accoucheur was placed upon any firm or rational basis. Many of his contemporaries likewise published upon this subject; "while the labours *of* the surgeons and physicians of the 18th century have raised several portions of the art to a degree of perfection well nigh approaching that of the exact sciences."

The midwifery forceps were invented in 1721 by *John Palfyn;* for, although the Chamberlayne family had long before employed an instrument of this kind, they disgraced themselves by refusing to give it publicity, whereas Palfyn hastened to announce to the world the instrument he had contrived, and which was afterwards advantageously modified by Smellie and Levret, in England and France respectively.

7. *Clinical Medicine.*

Oral Clinical Instruction, after having prevailed in the Asclepiadean families until the period of the School of Alexandria, fell into disuse, only to be revived at an epoch not very remote from our own, viz. in 1578, when it is related that the professors, Bottoni and Oddo, taught clinically at Padua. However, the practice seems to have been interrupted, and not to have been formally re-introduced, until Otto de Hewin lectured at the bedside at Leyden, at the beginning of the 17th century. Leboe, commonly termed Sylvius, followed his example, and his lectures acquired an immense reputation from 1658 to 1672. Again the practice fell into disuse, when it was revived at Leyden by the illustrious *Boerhaave* (1714), whose talents and celebrity attracted auditors from every part of Europe.

" His renown, which was already great, for he had published his *Institutions* and *Aphorisms,* became immense. He was consulted from the most distant countries, and was in correspondence with several sovereigns, and the Pope himself, although a Protestant. In searching for the real titles which recommend this illustrious man to the admiration of posterity, we find them thus clearly laid down by M. Dezeimeris, in the Dictionnaire Historique de Medicine.

" ' Boerhaave exercised, during his life-time and long afterwards, an immense influence upon medicine. Inferior in genius to his cotemporaries, Stahl and Hoffman, he enjoyed a much more extended reputation, and his doctrines long prevailed over those of his rivals. He owed this to the success of his mode of teaching, and the brilliant qualities of his mind. Gifted with rare activity and facility, he acquired the most varied and extended knowledge. Upon this he constructed a system connected together in all its parts with infinite art. Developed in his lectures and in his works with method, clearness, and precision, and set off with a rare grace of eloquence, we can believe it secured all suffrages. This system, which may be considered as a true eclectism, was formed of some ideas taken from Themison and the ancient methodists, those of the chemiater Sylvius, and especially of those mechanical and iatro-mathematical theories, towards which his taste and mathematical studies naturally inclined him. These last predominated, and this is why Boerhaave is justly classed among the mechanical physicians. It is to be regretted that, with such happy powers of observation, he allowed himself to be estranged from even his own principles by the

spirit of system and hypothesis. He commenced by preaching the method of Hippocrates with enthusiasm, and finished by following the brilliant, but uncertain example of Galen."—*Tom.* II. p. 311.

After the death of Boerhaave, the Leyden school rapidly declined in reputation, which was transferred to Edinburgh, and especially to Vienna, where Van Swieten, De Haen, Stoll, and Frank taught in brilliant succession.

The number of *written clinical observations* continued to increase during the period, which is characterized by attempts at a more accurate classification of already acquired facts, and an especial study of the influence of climate, seasons, regimen, and epidemic constitutions. Towards the end of the 16th century, the Hippocratic methods of study beginning to prevail over the Galenic, these important subjects occupied much attention; the work of *Baillou* upon the *Épidemic Constitutions of Paris* during the years 1570–80, representing the period of almost insensible transition from the Galenism of Fernel to the Hippocratism of Sydenham and Stoll.

Sydenham, who flourished during the better half of the 17th century, has justly obtained the title of the "English Hippocrates," both on account of his medical doctrines, and his profound study of the Epidemic Constitutions. The friend and cotemporary of Locke, he first taught physicians to recur to the simple observation of morbid phenomena after the example of Hippocrates. So great, indeed, was his dislike to mere hypothesis, that Sprengel has not hesitated to place him among the votaries of Empiricism; but he too often departs from his own wise maxims, by adverting to the essential causes of fevers and other disease to render this allowable. Much as he admires the admirable patience and untiring zeal with which Sydenham observed the influence of the Epidemic Constitutions, during so many years, M. Renouard is disposed to regard the theory he broached concerning their stationary character, supported though it is by the subsequent opinions of Stoll and Pinel, as fanciful, and calculated to destroy all stability in therapeutics. This and other of the opinions and labours of our countryman we could have wished to have examined at some length, both on account of their intrinsic importance, and because we believe they are insufficiently appreciated by the practitioners of our times. We are therefore much pleased to find that Dr. Milroy is publishing a series of admirable papers in the pages of a cotemporary,* with the laudable intention of presenting a complete and faithful summary of the writings of this great observer.

8. *Theories and Systems.*

The rapid progress of the various branches of natural science had already much shaken the authority of the Scholastic Philosophy, when, at short intervals from each other, *Bacon* and *Descartes* appeared, who, however much they differed from each other in the characteristics of their genius, or the modes of their reasoning, agreed in demanding as the primary step the entire liberation of the mind from its trammels. The great innovation introduced by *Bacon* was the reasoning from individual ideas to general axioms, thus reversing the procedure of Aristotle. The *Inductive System,*

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* Vide Lancet, for Aug. 15th and Nov. 14th, 1846, and Jan. 16th, 1847.

in his hands, was however disfigured by vague descriptions and departures from the lessons of experience, and met with little attention until it was completed and popularized by *Locke*, who, with lucid sagacity, demonstrated that which Bacon had only affirmed.   All the leading philosophers of England and France now adopted it, and no one contributed more to its greater simplification and general reception than *Condillac*. M. Renouard contrasts at some length the Inductive with the Deductive system of Descartes, Leibnitz, and Kant; but we need not pursue the parallel, as it is now generally acknowledged that, however appropriate the latter may be for conducting the investigations of the metaphysician, the moralist, and the mathematician, it is to the former we can alone look for safe guidance in the pursuit of natural science.

The Origin of Animism and Chemical Medicine.

No one contributed more to the discredit of the ancient philosophy and the introduction of a taste for novelties than did *John Baptist Van Helmont* (1577—1644). Thoroughly versed in a knowledge of the ancient writers, attached to the mysticism of Thomas a Kempis and other divines, an able and eloquent disputant, a friend to independent observation, a discoverer in chemistry, and believer in alchemy, his writings constitute a transition period between the ravings of Paracelsus and the more learned theories of a later epoch.   Yet, a keen exposer of the verbiage, the inconsistencies, and the visionary theories of Galen and Aristotle, he expounds in his turn a system so baseless and so confused, that M. Renouard, with all his patience, renounces the attempt of giving any connected view of it. According to it, the animal economy is influenced by three motor powers, consisting of certain *ferments*, the *archæus*, or great governing principle, and a third, which he terms *blas*, regulating the natural and voluntary movements. To the Stomach and Spleen, under the quaint title of the *Duumvirate*, he accords an omnipotence over the rest of the economy, the *archæus*, or sentient soul, always residing in one of these viscera, and especially at the pylorus. There are no less than six stages of *digestion* described, operated through the agency of various ferments, in the stomach, the duodenum, the mesentery, the heart, and the brain. The primary seat of all *disease* is the lining membrane of the stomach, the abode of the *archæus* and the various symptoms result from the efforts made by this principle to rid itself of the morbid conditions which injurious agencies may have induced.   In *therapeutics*, substances only which are agreeable to this *archæus* must be prescribed. Bleeding was proscribed and purgatives used sparingly, opium, wine, and the new mineral preparations being the favourite remedies, not neglecting magical words, charms, and amulets.

"Van Helmont founded no sect; but several sects borrowed from his ideas. The chemical school owes to him the idea of ferments, and from him the animists and vitalists derived that of the vital principle, modelled upon his *archæus.* The miracle-mongers, magnetisers, &c., place him among the adepts, and never did the partisans of the scholastic philosophy meet with a ruder adversary. 'At an epoch,' says M. Littré, 'when the superstitious beliefs of the Middle Ages were still adhered to, and when the powers of Nature, timidly interrogated, seemed always to present themselves under a mysterious or supernatural form, we should not feel surprised at the mystical spirit of Van Helmont, at his ecstacies when he saw his soul, or at his dreams, during which the solutions of the

most difficult problems were revealed to him. Nor is it astonishing that he often substituted hypothesis for hypothesis, error for error. The observers of that period were, in regard to many questions now well understood by us, in the same condition we find ourselves in with respect to other difficulties insoluble by our modes of investigation. What theory have we to offer in explanation of the cure of ague by bark, the origin of variola, or the destruction of its germ by vaccination? Who of us has not made his vain efforts to penetrate obscurity, and plunge beyond the horizon? Well! Let us then cast a glance back at that past which was then future, on our lights which were then darkness, and we can picture to ourselves the false glare and gropings of our predecessors—all the more ready to lose themselves, as unpossessed of that compass we have—the method of observation—inasmuch as, in the absence of facts, they could scarce abstain from hypotheses."—*Tom.* II. p. 378.

Iatro*-Chemistry.—The Chemist-Physicians.

Francis Leboe, surnamed *Sylvius* (1614–1672), the first Clinical Professor at Leyden, and a great cultivator of anatomy and chemistry, first employed the laws of this last science for the exclusive explanation of the animal economy. Borrowing the idea of the agency of *ferments* from Van Helmont, he does not employ the intervention of his *archæus* or governing principle. The saliva, bile, and pancreatic fluid, from the active parts they play in the economy, are termed the *triumvirate*, and through their agency the various fermentary processes are gone through. Professing to found his views entirely upon observation, he is continually assuming what is not proved, and explaining what is not understood. Disease, according to his views, consists in a vitiated or acrimonious condition of these various fluids, and is best treated by purgatives, narcotics, and the abundant use of volatile alkalis for the correction of morbid acidity.

Thomas Willis, (1621–1625,) our countryman, and the author of so excellent a work upon the brain, basing his views upon the same chemical foundation as the Leyden professor, even surpassed him in gratuitous hypotheses. From the igneous analysis of bodies he concluded there were five elements, spirit, sulphur, salts, earth and water, and endowed these with qualities as fanciful as the ancients attributed to theirs. The various organic apparatus of the economy, by virtue of special ferments with which they are endowed, are enabled to produce the requisite proportions of these different elements ; and it is through the faulty operation of such fermentations that disease is generated ; so that the physician has little else to do than watch such operation and remove obstacles from its due performance. Remedies act upon the spirits or the humours, exciting or modifying their fermentory motions in a thousand manners, thus producing various effects upon the system, and secondarily modifying the condition of the solids.

Iatro-Mechanics.—The Mechanical Physicians.

As the progress of chemistry gave rise to the attempt at explaining the functions of organized beings by the same laws which regulate the elementary combinations of inanimate matter, so that of mechanical and mathematical science suggested the application of calculation to the elucidation

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* Ιατρος, *Medicus.*

of the same phenomena. *Sanctorius*, by his experiments upon transpiration, led the way in this new description of research; but *Alphonso Borelli* (1608–1679) was the true founder of the Iatro-mechanical Sect. He published several essays bearing upon the subject; but his great work *De Motu Animalium*, did not appear until the year after his death.

"The fruit of patience and genius, this work created a new branch of medicine. Until then, very vague and erroneous ideas prevailed as to the amount of force expended by animals during their various movements, and the manner in which it was applied. Setting out from the principle that Nature attains her ends by the most simple means and the most direct road, it had always been believed that man and animals were so constituted as to be able to execute the greatest movements and bear the heaviest burthens whilst employing the least possible power. Borelli overcame this prejudice by reasoning founded upon anatomical research and the laws of statics. Comparing the bones brought into play by the muscles to cords set in motion by levers, he proved that man expends an enormous amount of force during his movements.   *   *   *
*   *   *   However much some of his calculations may be wanting in exactitude, and accepting them only approximatively, it is still demonstrated that man develops, during his movements, an incomparably greater amount of muscular energy than the obstacle he has to overcome—a truth which was far from being suspected prior to the time of Borelli. His book contains also a prodigious quantity of observations as minute as new, upon the various modes of progression and the postures of animals. To cite one example of a thousand, he furnished a very ingenious explanation of the manner in which a bird supports itself upon one foot while sleeping, and that upon a branch of a tree which every breath of wind puts into motion."—*Tom.* II. p. 393.

Really possessed of as little foundation as iatro-chemistry, Borelli's mechanical explanations of all the healthy and diseased phenomena of the economy, seemingly supported by anatomical facts, minute hydraulic calculations, and the recent microscopic observations, obtained, by their apparent mathematical exactitude and simplicity, the suffrages of numerous enlightened observers. No such precision of ideas had been attempted since the porous tissues and various shaped atoms of the old Methodists. Bellini, Baglivi, Sauvages, Senac, Boerhaave, Bernovilli, Pitcairn, Keill, Freind, and Mead, were among those who accepted them with more or less modification. Of these, M. Renouard confines his attention to Baglivi and Boerhaave.

George Baglivi (1668–1706), surnamed the Roman Hippocrates, endeavoured to extend the application of Borelli's ideas to pathology and therapeutics. Believing that the prevailing sects paid too exclusive attention to the condition of the *humours*, he set himself the task of proving that in all conditions of the economy, whether of health or disease, the *solids* are of predominant importance. Like the Methodists under Themison, he admits of only two classes of affections of the primary fibril, viz. too great tension or constriction, and too great softness or relaxation—the *strictum* and *laxum*. But Baglivi's theories are not his only claim to our notice; for he produced an admirable work on practical medicine, in which he insists upon our taking observation as our guide, sacrificing theory to experience. We no longer see merely the great opponent of the old humoral pathology and parent of modern *solidism*; but the enlightened practitioner, admitting that in chronic disease there may be a cocochymia or vitiation of the humours.

Hermann Boerhaave (1668–1738), endowed with a vast and subtle intellect, and profoundly versed in the writings of the ancients and the labours of the moderns, conceived the idea of uniting in one body of doctrine the various theories of medicine. Like Galen and Fernel, he was an Eclectic, but, inasmuch as mechanical explanations predominate in his writings, he has been classed with the Iatro-mathematicians, just as they were with the Dogmatists. He published his *Institutiones* in 1708. Their physiology consists of a most skilful amalgamation of anatomical, physical and chemical ideas. Unlike Baglivi, however, he did not, in the practice of his art, abandon his speculations for observation, and never seems for an instant to have doubted their exactitude.

After the death of this celebrated man, the iatro-mechanical doctrines rapidly fell into obscurity, from which historians of physiology have only revived them.

Animism and Vitalism.

At the very time when the celebrated Leyden professor was spreading far and wide his mechanico-chemical theories, the newly-founded school of Halle was producing observers whose systems were speedily destined to overthrow these. *George Ernest Stahl* (1660–1734), conferred a vast benefit upon the study of the science of life, by recalling the attention of its votaries to the contemplation of the effects of the vital powers upon the economy in health and disease. The chemists had presented their ferments as the essential phenomenon of life, which the mathematicians placed in the contraction of the primitive fibre ; but Stahl makes it consist in the preservation of the integrity and due mixture of the humours of the body through the immediate agency of the *anima* or immaterial soul. This agency he endeavours to prove by two arguments : first, that the body has been only created as the mere instrument through which the soul might operate ; and secondly, that motion, by which alone life is maintained and its actions carried on, is a spiritual, not a material act. Unstable as is this hypothesis, it has the merit of greater simplicity than some of its predecessors, which its inventor ridicules with the bitterest irony. It is, in fact, but a modification of the *archæus* of Von Helmont, and did good by recalling attention to the study of the vital, as distinguished from the mere mechanical, phenomena then in vogue. Every pathological condition, according to Stahl, resulted from the re-action of the *anima* against the morbigenous principle ; and as the symptoms of disease but represented the regular succession of a series of vital movements designedly excited by a reasoning agent, the office of the physician became reduced to that of a mere spectator of the sufferings of the patient, since active interference on his part might only derange some of the combinations of this supreme regulator of the economy. The iatro-chemists and mechanicians had too much lost sight of the great power which nature possesses of rectifying the derangements of the economy, just as the Stahlians grossly exaggerated it.

Out of Germany the doctrine of Animism made but few converts, and in France that of *Vitalism*, as advocated by Barthez, of Montpelier, was far more generally received. This recognised the agency of the *vital principle*, much more resembling the *archæus* of Van Helmont, than did the *anima* of Stahl, distinct from the body or the immaterial soul, and yet endowed with feeling and perception.

Organic Dynamism, (Vital Power resident in the various Organs.)

Another class of physiologists believed the *vital forces* to be inherent in the respective organs, and occupied themselves in studying the laws of their operation. *Hoffman* (1660–1742), who first set the example of this simpler mode of viewing the economy, regarded disease as resulting from a perverted condition of the vital movements, too great contractility inducing spasm, and too feeble relaxation. These movements of the organic solids were, however, considered by Hoffman but as effects of the elasticity of structure; and *Cullen* (1712–90), was the first who applied the results of the researches of Haller upon the contractility and irritability of tissues to the construction of a medical theory, assuming irritability as a primary fact, the origin of which it were futile to search for. Hoffman regarded an anormal afflux or reflux of blood as the primary instrument of tension or relaxation. Cullen sought the point of departure in the nervous fibrils. Both, however, were admirable practitioners, and, notwithstanding their partiality to solidism, admitted of medicines calculated to act upon the humours, and frequently exhibited the therapeutical indications derived from the observation of the apparent phenomena with remarkable clearness. *John Brown* (1735–88) attempted to build upon a portion of Cullen's theory a most fallacious and dangerous system. He made health consist in the maintenance of a normal amount of excitability, disease being of a sthenic or asthenic nature, accordingly as this is in excess or defect; and, as he considered the vast majority of affections to be of a hyposthenic character, the exhibition of active stimuli constituted his principal therapeutical agent.

Revival of Rational Empiricism.

The partisans of the ancient medical sects, however much they differed among themselves, united in opposing the experimental methods of the Empirics, which so tended to sap the very foundation of hypothetical reasonings. The consequence was that universal odium and neglect befel these enquirers, who were really in advance of their age, and it has not been until recent times that their principles have been avowedly adopted. The progress of the Inductive philosophy should seem to be highly favourable to their reception; but, through prejudice and the abstruse nature of medical science, and the difficulty of discerning in it the reality of experimental deduction, the bearing of medical enquirers during the Reformatory Period towards Empiricism was most uncertain and contradictory.

"It would be easy to exhibit such contradictions in the writings of Torti, Sydenham, Stahl, Morgagni, Sauvages, Cullen, Barthez, Pinel, Frank and others, in all of which we find the maxims of experimental philosophy adopted and proclaimed, and yet the name of empiricism discarded and denounced."

We regret our inability to follow M. Renouard through his interesting exposition of the recent triumphant progress (especially in Britain) of the principles of Rational Empiricism. Indeed, notwithstanding the length of this article, we have been compelled to pass over the last chapters of the work in a very hurried manner; and, entirely analytical as our notice has been, we can find no room for any comments or criticisms it suggests. These must be reserved until the publication of the Supplement, in which M. Renouard proposes to sketch the doctrines of the 19th century. In the mean time we may express our cordial approbation of the manner in which he has executed his present elaborate performance.

THE PATHOLOGICAL ANATOMY OF THE HUMAN BODY. By *Julius Vogel*, M.D., Professor of Clinical Medicine at the University of Giessen.   Translated from the German, with Additions. By *George E. Day*, M.A. & L.M., Cantab., &c.   Illustrated with one hundred plain and coloured Engravings.   London, H. Bailliere, 1847.

THE editor of the French translation of Dr. Vogel's Pathological Anatomy justly observes, " in the age in which we live, value is only attached to that which is productive of positive and fruitful results.   Medicine has not been able to escape this practical tendency, and hence, showing itself less curious than formerly in abstract speculations, it has converged more than ever towards the final end of all its efforts—the perfectioning of the art of curing."   It may not to some persons appear very clear that a work, in which histology, microscopy, and chemistry play a conspicuous part, obeys the impulse to which we have referred; and yet no one who reads the treatise before us can doubt that it is eminently practical.   It is not because many new terms, and especially since the researches of Schwann, Henle, and other observers of the same class, have been introduced, that morbid anatomy and pathology have changed their essential character; on the contrary, the objects pursued now, and the results aimed at, remain the same as in the days of Morgagni and Baillie ; the means of investigation alone have been altered with the advance of science, and with that advance, it may be safely affirmed, the modes of enquiry have become much more effectual, and the knowledge obtained, consequently, much more satisfactory.   If it ever was a point of moment to form a natural classification of tumours ; to distinguish definitely malignant from non-malignant growths ; to detect in what consists the essential character of scirrhus, fungus, and other reputed specific formations; and more than all this, if at any time it concerned the physician to know what is the series of structural changes inducing the morbid actions it is his office to control and remove, then is pathological anatomy, as now cultivated, a subject deserving the careful study of every enlightened practitioner.

In the introductory portion of his work, the author has with much judgment shown the limits, the objects, and the appliances of the important subject he so ably discusses.   In tracing the relations of pathological anatomy with the individual branches of medical science, and after condemning the opposite but equally mischievous errors of an overweening confidence and an undistinguishing scepticism, Dr. Vogel proceeds to say :

" Above all, we must not be led away by such phrases as " practical views,' and ' medical experience'—terms of common use, and too often conveying an erroneous impression.   The practical views of the physician are the result of a series of accurate observations elucidating the treatment of disease.   The true physician may be distinguished from the empiric by this, that the latter is more or less unconscious of the grounds on which he acts; and if the experience of the empiric seems in some few cases to be more successful than science, it can only be referred to a fortunate chance directing to the right point, and probably not based on the conscious experience of a single case.   In proportion as the

science advances, and its cultivation is zealously carried on, so much the more will practical views and experience become the common property of all physicians who combine theory and practice ; and that which was formerly regarded as the exclusive property of the medical pioneer will be open to all—will be almost the common stock of all who strive to obtain it.—P. 4.

The vast importance of chemistry, especially in relation to those numerous diseases which are connected with the fluids of the animal body, is generally recognised in the present day ; but, owing principally to the difficulty of the enquiry, a custom has arisen of regarding this subject as belonging to a separate science to which the term *"Pathological Chemistry"* has been given. That this disseveration must retard the medical knowledge of many important diseases, is sufficiently obvious ; instances of serious if not of fatal mistakes, arising from this cause, are not indeed of rare occurrence ; and we therefore extract the judicious observations of the author respecting the practice just noticed.

" In the investigation of delicate points connected with pathological histology, the miscroscope is indispensable, and the application of chemical re-agents must be observed under it. Chemical analysis is, indeed, of the greatest importance to pathological anatomy, being the only means by which we can on several points obtain the desired information. At present, much to the detriment of the science, chemical investigation is little pursued in conjunction with pathological anatomy: but assuredly the time will soon arrive, when chemical analysis will be deemed just as indispensable to the prosecution of pathologico-anatomical investigations as the microscope is at present, and when every follower of this science will consider chemical analysis so essentially requisite, that if his own time and opportunities prevent him from carrying it out, he will employ a chemist, under his immediate guidance and direction, to undertake it for him."—P. 11.

The two great sources of accurate knowledge in pathological anatomy are, as the author affirms, *observation and experiment ;* the former being the principal means of investigation as far as the human body is concerned; whilst the latter, for obvious reasons, is almost exclusively restricted to animals. It is hardly necessary to combat an objection frequently urged in former years, that the results obtained from pathological changes induced in the lower animals, are not trustworthy when applied to man. Two of the most ordinary phenomena presented to the notice of the practitioner, the reparation of fractured bones and inflammation, have been elucidated almost exclusively, as regards their essential characters, by experiments and observations made on living animals ; whilst, as concerns the restorative process in wounds of the intestines and divided arteries although more has been learnt from the inspection of the human body than in the preceding instances, yet the most precise and satisfactory information has sprung from well-devised experiments practised on the brute creation. It is somewhat strange that this objection should ever have arisen, since no one could be found to deny that great light has been thrown upon many interesting branches of pathology by diseases occurring in the domesticated mammalia. For these reasons we are fully prepared to coincide with Dr. Vogel, that conclusions drawn from this source are not only admissible, but that comparative pathology and pathological anatomy afford as much assistance in the prosecution of this science in relation to man, as comparative anatomy does for the thorough comprehension of human anatomy and physiology.

But to give value to any mode of investigation, the facts must be multiplied and scrupulously weighed. Limited observations and hasty generalizations have been the special bane of medical science, not merely by leading to error, but by tending to throw discredit on the very means by which of all others the most assured results are to be attained. In short, that science, for such it is, in which so many of the great questions affecting civilized communities have found their solution, namely statistics, must be applied to that which lies at the bottom of all enlightened medicine and surgery—pathological anatomy. True it is, that to apply the statistical method to morbid anatomy, is a much more difficult matter than to determine the mean duration of human life, or the average age at death; for, as the author observes, in proposing as a problem the question whether scirrhus and tuberculosis exclude each other, " although physicians are not likely to dispute whether or not a man is really dead, there are few points on which there is more difference of opinion than whether a tumour is to be regarded as of a scirrhous nature or not." There are not then, at present, the data requisite to enable some second Newton to give to pathology its laws and principles; an additional reason this for all who are interested in the future progress of medicine to imitate our author. " In our science," he justly observes, " we must follow the examples set us by the astronomers, magnetists, and meteorologists (and he might have added the geologists), who continue for years to carry on the most careful general observations, and to make them public property, in the hope that the general laws which they fail to establish, will be developed by their successors."—*Introduction*, p. 18.

In the volume now translated, Dr. Vogel treats only on the generalities of morbid anatomy; a second volume will follow, in which the special department, or that relating to changes in the individual organs, will be comprised; and, as Dr. Day has undertaken the translation of this concluding part, the English reader will soon be in possession of one of the most recent and complete treatises that have appeared in relation to pathological anatomy. Although we feel it but just to the author to speak thus favourably of his well-known work, we cannot withhold the expression of our opinion, that it is valuable rather on account of presenting a comprehensive epitome of the existing knowledge, than for the extent of original observation in reference to microscopy as applied to morbid anatomy. And further, this treatise, in which the new system of pathology is, without reservation, adopted, appears to us to be particularly deficient in the application of the great discoveries made of late years in structural and philosophic anatomy, and which must, for the reason just stated, be regarded as a fundamental defect: the justice of these remarks will, we think, become apparent in the course of the present article.

The general scope of this first division of the subject will be understood by the following sketch of the order, in which the different morbid changes are discussed.

" We commence with abnormal collections of fluids in the body—of the gaseous (pneumatoses), of the aqueous (dropsies). The latter are divided in a manner that seems natural and practically important, although not hitherto adopted; namely, into serous, fibrinous, and false dropsies. Then comes a sketch of the morbid changes of the blood as far as they are at present understood. Thi·

succeeded by a chapter on pathological epigeneses,* which from their nature occupy a very considerable space, and by a brief sketch of the changes which the tissues undergo in their physical properties, together with some remarks on the manner in which morbid changes in the elementary tissues are connected with each other. The next chapter treats of the independent organisms which occur in the human body, as causes or consequences of morbid changes (parasites.) Then there is a chapter devoted to congenital pathological changes (malformations), and we conclude with a notice of the changes occurring in the body after death."—P. 20.

The second Chapter contains some interesting remarks on the various forms of Dropsy; though the author has hazarded some opinions, the correctness of which appears to be somewhat doubtful. He distinguishes in this affection three distinct forms :—serous dropsy, in which the fluid is identical in its qualitative chemical composition with the serum of the blood ; fibrinous dropsy, in which the fluid contains dissolved fibrin, and in its chemical composition resembles the plasma of the blood ; false dropsy, in which the fluid differs essentially in its chemical composition from either of the preceding forms ; this is, in fact, not dropsy at all, but merely an accumulation of a natural secretion, owing to an impediment to its exit, as of urine (hydrops renum), of bile, &c. These forms not only thus differ in the physical and chemical characters of their fluids, but, as Vogel believes, likewise, very essentially in their causes. Thus he is of opinion that serous dropsy owes its origin to a permeation of the serum of the blood through the walls of the veins ; whilst fibrinous dropsy arises from a permeation of the liquor sanguinis through the walls of the capillary vessels.

The cause and mode of origin of serous dropsy are thus explained: " we are induced to believe that serous dropsy always proceeds from the venous system, and that it takes place as soon as there is a want of balance between the porosity of the venous walls and the specific gravity of the blood contained therein ; that is to say, when the venous walls become more porous, or the blood lighter and more aqueous than in the normal condition. In either case there is an increased transudation of serum through the walls of the vessels. This is the manner in which local dropsy invariably occurs where individual veins are compressed, or, either for a time or permanently obstructed, as in cases of pressure from a tumour, or of complete obliteration. In this manner, the pressure of the impregnated uterus causes œdema of the feet; and pressure on the *vena portæ* and *vena cava ascendens*, arising from degeneration of the liver, or some other tumour, produce ascites and œdema of the lower part of the body."

Although the increased hydrostatic pressure of the blood is doubtless one of the determining causes of the effusion; yet, as the author observes, this phenomenon cannot, in the existing state of knowledge, be regarded as a purely mechanical process ; nor does the above account explain all that takes place. How, for example, does it happen that the fibrin, which is dissolved in the plasma, remains in the vessels when the serum escapes ; and, again, what is the reason why, as a general rule, these dropsical fluids contain as large an amount of salts, but more water and less albumen than

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* "Neubildungen; literally, new formations."

the serum of the blood ?   No satisfactory explanation can at present be
offered of these and similar phenomena; but it is most probable that
they still depend upon some subtle chemical and physical conditions
affecting the blood, and requiring only further and more successful in-
vestigation for their elucidation.

In speaking of *fibrinous dropsy*, the author appears not to be acquaint-
ed with the received opinions of this and other countries; for he says it
is a species that has hitherto been seldom described, that its signification
has not been properly interpreted, and that it has never been correctly
distinguished from serous dropsy.   It is somewhat surprising to find a
pathologist of Dr. Vogel's attainments making these extraordinary state-
ments, which the daily experience of all our readers must directly con-
tradict.   What is here termed " fibrinous dropsy," is that familiar form
of effusion, partly of fibrin and partly of serum, which so repeatedly
takes place, most commonly into the different serous membranes, but
frequently in other situations, as in the parenchyma of organs.   That this
form of effusion " has never hitherto been correctly distinguished from
serous dropsy," is a most absurd assertion.   No practitioner would con-
found the two affections together; indeed, we are inclined to doubt
whether the generality of medical men, by regarding the effusion of
fibrin as an inflammatory process and that of a serous fluid as the result
of congestion, do not thereby establish the most important and valuable
of all distinctions.   The author gives only a more technical definition of
the same thing in the following passage :—

" In serous dropsy, the causes of venous dilatation are frequently mechanical, and
are, consequently, included in the department of pathological anatomy.   Not so with
fibrinous dropsy.   Here the dilatation is dependant on dynamic causes, whose in-
vestigation would, of necessity, lead us far into the department of nervous patholo-
gy.   *   *   *   I restrict myself, at present, to the mere statement that
fibrinous dropsy is essentially dependant on the capillary system ; that it is associ-
ated with, and for the most part arises from, a dilatation of those vessels, and a
tension and attenuation of their walls."—P. 51.

This opinion, namely, that the capillaries are more especially the part
of the vascular system concerned in fibrinous dropsy, is in all probability
correct ; for, although it is impossible to demonstrate the fact in the hu-
man body, the well-known phenomena connected with the dilatation of
the capillary vessels, as determined by the microscopic examination of the
lower animals, leave scarcely any room for doubt.   But a similar diffi-
culty to that noticed with respect to serous dropsy, where only the serum
of the blood escapes, presents itself here :—

" Since the serous, and also the fibrinous fluids, take their origin from the
blood, and are produced by the permeation of its fluid constituents through the walls
of the vessels, how is it that in some cases we have one, and in others, the other
form of effusion ?   In the present state of our knowledge, this question cannot be
satisfactorily answered; there is, however, every probability that it admits of this
solution; namely, that serous dropsy, as we have already stated, owes its origin
to a permeation of the fluid of the blood through the walls of the veins, while
fibrinous dropsy arises from a similar permeation through the walls of the ca-
pillary system."—P. 50.

In connexion with this point, it must be borne in mind, what the abo---

passage leaves in some doubt, though the fact is elsewhere noticed, that in fibrinous dropsy it is the whole of the liquor sanguinis that is effused, although subsequently, the serum often being absorbed, the lymph alone is met with. The general chemical character of the effused matter is thus described :—

"In its chemical composition, this fluid is identical with the plasma of the blood; that is to say, with the blood independently of its córpuscles : it is serum or the fluid of serous dropsy, with dissolved fibrin.   *   *   *   *
The similarity of the fluid to the plasma of the blood occasionally extends even to their quantitative composition; usually, however, the dropsical fluid is the richer in water, and contains a less amount of organic constituents—albumen and fibrin. It is very seldom that this rule is reversed.   In this point, therefore, there is the same relation as between the fluid of serous dropsy and the serum of the blood."—P. 47.

It is well known that the chances of effecting an absorption of a fibrinous dropsy are much less than in the serous form of effusion.   The probability of securing this important object is, however, remarkably dependant upon the situation and extent of the effusion, and, according to the author, upon the state in which the fibrin exists.   As to this latter point, Dr. Vogel affirms that, as long as the fibrinous fluid is not coagulated, it may, like the serous fluid, be resorbed, partially or completely; and even, he thinks, with a greater facility, on account of there being no impediment to the activity of the venous system.   "But if the fibrin be once coagulated, then the resorption can only extend to the serum ;" unless, indeed, it can be rendered fluid again by chemical remedies, such as iodine, which, "for the present, remain unanswered questions."   We cannot agree in the whole of these statements.   As to the greater facility of absorption of liquid fibrin, as compared with serum, this must be mainly a matter of surmise ;   and, recollecting the rapid disappearance of ordinary dropsies, which occasionally takes place under active treatment, it does not seem to be a likely occurrence.   Then, again, the author speaks doubtingly of a firmly established fact in pathology, the possibility, namely, of coagulated fibrin being absorbed.   In iritis this is constantly seen, and the same thing is known to take place in effusions of solid fibrin occurring in the parenchyma of organs, as in the lungs.

Dr. Vogel notices an interesting fact, that when the dropsical fluid is enclosed in a sac of coagulated fibrin, and in a manner thus cut off from the absorbing vessels, be they veins or lymphatics, the resorption is a more tedious and difficult process.   We have lately met with a most striking example of a multitude of cysts, varying in size from a hazel-nut to an orange, formed of effused and coagulated fibrin, and containing serous fluid.   The case was originally one of extensive chronic peritonitis affecting almost every part of the serous membrane, which was uniformly indurated, in some places cutting like a scirrhous substance, and also much thickened. There had been during life intense and long-continued suffering, with a feeling as if the bowels were bound together, and at other times a painful tearing sensation was experienced.   Recent and most extensive acute peritonitis had supervened, producing the changes above noticed, and causing great swelling of the abdomen with a mixed feeling, on examination of fluctuation and doughiness. Under the microscope, the im-

mensely thickened peritoneum, exhibited scarcely any thing else than an infinite number of minute wavy fibres, like those of areolar tissue, and without a trace of the cells seen in true scirrhus.

As several notices of the Blood have recently appeared in this Journal, we pass by the Chapter on the Pathological relations of that fluid, though it will well repay a careful perusal.

The larger portion of the present volume is occupied with what Dr. Day terms "Pathological Epigeneses." The original expression (*Neubildungen*) signifies literally "new formations." Although neither of these names is free from objection, we think, on the whole, that employed in the translation is the best of the two. It expresses, for example, more truly the relations of fibrous and fatty tumours to the normal structures ; these can hardly be regarded as entirely new productions, inasmuch as they resemble the natural tissues after which they are named, both when seen by the eye and when examined by the microscope. But the fact is that the error lies with the author, who in his zeal for philosophic generalization, has placed in one category a number of essentially different morbid productions— pus, fibrous, fatty, and encysted tumours—tubercle, scirrhus, and encephaloid—and even unorganized deposits, such as urinary and biliary calculi. It is clear that the laws regulating many of these growths and concretions, are so totally distinct, that no benefit can accrue by regarding them, even remotely, from the same point of view.

After dividing pathological epigeneses into two groups, the organized and unorganized, Dr. Vogel observes that, like every thing else in Nature, there must be a matter from which they may be produced. To this, which may either be fluid or solid, he applies the general terms *plasma* or *formative matter*.

" A plasma may act as formative material either for organized or unorganized products, or for both at the same time. The plasma for unorganized formations, which is usually an aqueous solution, from which deposits are produced or crystals formed in accordance with chemical laws, we shall name a *mother-liquid;* the matter giving rise to organized formations which are chiefly produced by the formation of cells, we shall term a *cytoblastema,* or, for brevity, a *blastema ;* and lastly, a plasma, from which organized and unorganized products are developed, will be designated as a *mixed plasma.*"—P. 101.

As regards the plasma of organized pathological formations, or blastema, it must always be amorphous, that is to say, it must neither be crystalline nor have a definite organic form. It is evident that, if this principle can be firmly established, the old idea, namely, that a tissue may be directly converted into a pathological formation, must be overturned. This, for general pathology, is therefore a most important question, and is ably discussed in the work before us. We need scarcely remind our readers that the tendency in all sciences in proportion as they advance, is to refer their varied phenomena to a few general laws. In the particular instance of organization, this has been strikingly illustrated in late years ; and one of the most fundamental of these generalities is, that whatever may be the ultimate form of organized matter, whether normal or diseased, it has apparently but one origin, namely, fibrin, which is therefore to be regarded as the plastic element in all nutritive processes. With respect to healthy nutrition, this position seems to be satisfactorily proved, at least there

at present no known example of albumen, fat, or other proximate principle, becoming directly organised. It may be thought, indeed, and this is the opinion of Vogel, that, in the case of the egg, the prototype of all formative fluids, and which up to this time is not known to contain fibrin, there is an exception to this rule. But there is good reason to believe that the received opinions upon this subject are erroneous; for we ascertained some few years since that the formative matter in the egg of the fowl lying immediately beneath the germinal membrane, and which is a compound formed by the admixture of the white and the yelk, differs from both those albuminous substances, by being perfectly liquid and not coagulable by the ordinary tests for albumen. This fluid matter is probably fibrin, and when it is recollected how similar is the chemical constitution of albumen and fibrin, and how readily the former is converted into the latter, of which the best example is furnished in the changes taking place in the chyle as it traverses the lacteal absorbents, there is no difficulty in conceiving of an analogous action going on in incubation.

Whatever doubts may yet remain upon the point just considered, there can scarcely be any with respect to the principle that fibrin is essential to all morbid products: upon this question the author speaks most decidedly. After showing that non-azotized substances, such as fat, salts, &c., cannot act as blastema for organized formations, he proceeds to observe:

"Hence there remain, as the actual and potential constituents of the blastema, only the protein-compounds; although these are never found alone in the body, being always associated with the above-named substances. Further, all these protein-compounds are not susceptible of development. Fluids which merely contain dissolved albumen and the above substances never appear to act as cytoblastemata. In the common dropsical effusions, which are always rich in albumen, we never observe any organized products, unless fibrin be also present; this is at least the result of my own observations, which have been very numerous, and I am not acquainted with a single exception to the law. Moreover, fluids in which casein is the only protein-compound, cannot, as far as observation has yet shown us, act as blastemata. In the milk, for instance, as long as it contains merely casein, we never observe any pathological formations, for the granular bodies belong to the normal process of development of the milk; as soon, however, as any fibrin is present, morbid products, such as pus-corpuscles, may be formed in it. On the other hand, in all fluids which we regard as cytoblastemata for morbid products, fibrin has always been found: hence we must regard it as the necessary and apparently the most essential ingredient in the cytoblastema. This law respecting the necessity for the occurrence of fibrin in the cytoblastemata of morbid products, I have seen to hold good in several hundred cases, without a single exception."—P. 107.

Having determined the first great principle connected with organised epigeneses, namely, that they all spring from fibrin, the organizable matter par eminence, Dr. Vogel enters upon another of these fundamental questions which lie at the bottom of all sound pathology—on what is the development of the cytoblastema dependant? He sets out with an assertion, for which we think there is no sufficient ground, to the effect that chemical action cannot be the efficient cause; the arguments for this opinion are, however, derived more from our ignorance than from our knowledge, and are, for this reason, not very satisfactory. A careful consideration of the phenomena connected with the coagulation of fibrin,

and of the first and essential steps in the process of its organization, induces us to express an opinion that the changes perceived are rather of a physical than of a vital character. They are connected, for example, with an alteration in the form of matter, the liquid lymph becoming solid and fibrillated, phenomena indicating, like the conversion of water into ice, or the formation of crystals from a saline solution, a subtle molecular action. The production of the peculiar corpuscles observed in coagulated fibrin, and evidently one of the earliest and most important steps in its organization, may be explained in a similar way. The predominating influence of chemical forces in the nutritive process, evinced especially in digestion, respiration, and secretion, of itself renders it a reasonable proposition, that the same agencies are operative in the whole of what is called the organic life.

Dismissing the question relating to the nature of the forces employed, we proceed with the author to inquire where they operate, and, to obtain what the Germans call a *standpunkt*, or starting-point, two hypotheses may be assumed :

"There are two different causes which may be supposed to affect the transition of the blastema in development; firstly, the cause may be grounded on the nature of the cytoblastema, and the formation may be developed with the same necessity which, under favourable conditions, compels the separation of certain crystals from their mother-liquid; or secondly, the transition in the development may be dependant on external conditions, independent of the cytoblastema, as for instance, on the influence of the surrounding parts of the body, &c."—P. 110.

In order to ascertain which of these hypotheses is deserving of preference, it is necessary " to distinguish between the capacity of the cytoblastema in the progress of development (potentia) and the actual transition (actus)." With respect to the capacity, Vogel justly remarks, no one will deny that it essentially belongs to the cytoblastema; for, if it depended on external influences, then would every substance placed in similar relations undergo the same process of development, an assumption entirely at variance with experience. The author concludes, as regards the " actual transition," in the instance of morbid products, that, as a rule, it can only be effected by the agency of the surrounding parts. He admits, it is true, some isolated exceptions, such as that pathological elements, especially pus-globules, can be produced without the contact of organized tissues. The general inference, as maintained in the work before us, is then that although the capacity for organization is inherent, in every instance, in the cytoblastema, the act itself is dependant upon the surrounding tissues, which are further believed by Dr. Vogel to have the power of converting the new matter into their own texture, although the nature of the blastema is not a matter of indifference, more particularly, as it would appear, in those diseases in which the morbid product is altogether different from the surrounding parts, as in scirrhus, encephaloid, &c. The views of the author on this interesting question are thus set forth :

"In the process of regeneration and in hypertrophy, where the influence of the cytoblastema on the nature of the development is at its minimum, the development itself appears to be entirely dependant on the normal histological elements between which the blastema is effused. Thus, in regeneration and hypertrophy, the blastema between areolar tissue, becomes areolar tissue; in the vicinity of bone, it

becomes cartilage and bone; between muscular fibres, it is converted into similar tissue;* at the extremities of divided nervous fibrils, it forms nervous substance, &c. The circumstance that these and no other structures are formed, cannot in these instances be dependant on the blastemata, which, as far as chemical analysis goes, seem to be the same; and it is entirely the influence of the surrounding parts that modifies the character of the development. Here, then, if we may be allowed the expression, we are entering the department of *solid pathology*.

" But it may be further asked : it being granted that, in the above cases, the nature of the development is essentially dependant on parts of the body already formed, what is the case with those pathological epigeneses in which the resulting morbid product is perfectly different from the surrounding parts, as in scirrhus, encephaloid, tubercle or pus ? Is not the abnormal character of the product dependant on a peculiar pre-existing blastema, so that there is always one kind of blastema for scirrhus, another for encephaloid, and so on ?

" We are yet hardly in a condition to answer this question satisfactorily. It is quite possible that the elements of the peculiar structures of scirrhus and encephaloid may be traced to the blastemata from which they spring, and that, in accordance with the views of the humoral pathologists, the pseudo-plasma may be dependant on an abnormal chemical composition of the blood. Another explanation may be attempted which equally elucidates the appearance of these peculiar morbid products, namely, that the peculiarity of the epigenesis is not dependant on any property of the blastema, but on changes in the properties of the tissues influencing the blastema; and thus the explanation of these phenomena is again transferred from the department of *humoral* to that of *solid pathology*, or, since in many cases these changes are dependant on a change in the nervous influence, to that of *nervous pathology*. It is, however, in the highest degree probable, that in the majority of cases neither the one nor the other of these views alone is strictly correct, that for the most part changes in the cytoblastema and changes in the physiological properties of the tissues are conjointly at work in producing an abnormal epigenesis."—P. 114.

In supporting his doctrine, Dr. Vogel takes as a basis the process of natural development as it is witnessed in the egg of the bird. Although entirely agreeing in the necessity of this mode of procedure, we cannot coincide with this distinguished pathologist in some of his deductions. Being satisfied that, in all speculations of this character, the ultimate facts of organization can only be discovered by setting off with the fixed assurance that simplicity and unity pervade all the works of Nature, we cannot admit that there is any essential difference, which the author affirms there is, between the nutrition of the perfect organism and the formation of the new being in the egg. In the latter case, it is certain and admitted, that the cytoblastema has not only the " capacity" of becoming developed, but also the power of actually effecting development; and the same energies must be attributed to the cytoblastema of the perfectly-formed animal. If this be granted, and it is a position which no philosophic anatomist would be inclined to doubt, it follows that, in the first class of epigeneses, or those in which, to borrow the author's words, " the epigenesis takes place in a manner perfectly analogous to that which occurs in healthy nutrition," so far from the influence of the cytoblastema

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* This is erroneous; a divided muscle is united by a cicatrix of dense areolar tissue.

being, as asserted, at its minimum, it is in reality the efficient cause of the whole phenomena. As regards the second class, comprising scirrhus, encephaloid, tubercle, &c., so far, again, from there being any evidence that the surrounding tissues are the determining cause of the development of the cytoblastema, it is seen that the latter, when it has undergone its morbid metamorphosis, has, in the first place, no resemblance whatever to the tissue around which, in accordance with the theory, it ought to have ; and in the second place, that whatever may be the tissue in which the deposit takes place, whether in the areolar tissue, in a gland, a muscle, or a bone, the new matter always presents the characters proper to its peculiar nature. Tubercle, for example, always offers the same aspect. and microscopic appearances wherever it is examined, in the brain, in the lungs, or in the testis.

Although, at the first blush, it may seem that the hypothesis which attributes the act of development to the surrounding parts, especially in the first class of epigenesis, where it is said, in obedience to what the author proposes to call "the law of analogous formation," that bone forms bone, and muscle produces muscle, is a probable explanation ; yet, when closely scrutinized, it is beset with difficulties. If the blood-vessels are supposed to be the controlling agents, what notion can we form of their *modus operandi?* The actions of these organs have been very much curtailed by the exact anatomy of the present day: and under no reasonable supposition can they be admitted to act beyond their defined limits, in the manner in which they must operate, if they be the formative agents. Then, with respect to the nerves, it is positively known that their power is not essential to nutrition ; a considerable part of the chick, for instance, is formed before the nervous system appears ; and in plants there are epigeneses, but there are no nerves. If, in answer to the opinions we have advocated, it be said that it cannot be understood how it happens that from one of the same substance, fibrin, such a multitude of different products arise ; a sufficient reply is furnished by the fact, that tissues as diverse from each other are in the chick, in obedience to the mysterious laws of organization, formed from and by that one material or cytoblastema lying beneath the area germinativa. It is, however, probable, as indeed Vogel himself surmises, that the cytoblastema is not always the same form of fibrin ; and that in these modifications may be found one of the causes leading to so many heterogeneous productions.

In considering individual new formations, the author premises some general remarks on the cell-theory of Schwann, in the truth of which, as applicable to morbid productions, he, on the whole, coincides ; but, like other observers, he finds it necessary to restrict or to qualify the general position that all tissues spring from nucleated cells. Thus, in scrofulous and typhous exudations, and in a great part of the cases of tubercle, there is at first a finely granular or even an amorphous matter, which by degrees breaks up into a more or less fluid magma, with irregular molecules, but no true cells. As this subject has on several occasions been considered in this Review, it will suffice to extract the following paragraph, in which the general views of Dr. Vogel are stated:—

" That this mode of development from cells occurs in pathological epigeneses may be readily shown in numerous cases. This process can be most obviously

traced in the formation of pus-corpuscles, when they are produced from a fluid blastema on a free surface, or in a cavity connected with the exterior of the body. In such a case, we first observe numerous isolated granules, which become surrounded by a very delicate transparent cell-membrane, which subsequently forms so thick and opaque a wall, that the nucleus can no longer be seen through it; on the addition of acetic acid, which dissolves the cell-wall, or at any rate renders it transparent, the nuclei again become visible. If it is impossible to trace the whole course of development in one and the same cell, we can yet make out the successive changes of the whole mass of cells with sufficient certainty.   These and similar observations, such as for instance may be made on the formation of epithelium, confirm the opinion, that in all essential points Schwann's theory is applicable to morbid formations; but that, in individual cases, many facts may be observed which do not coincide with this theory, or at least render some modification imperative."— P. 118.

The 5th Chapter treats of the special characters of pathological epigeneses, both fluid and solid, and, from the numerous subjects investigated, occupies the larger portion of the present volume.   The section relating to purulent matter does not contain anything so novel or important as to require notice, nor indeed do several of those which succeed, concerning the epigenesis of areolar tissue, of blood-vessels, &c.

In speaking of melanotic productions, it is stated, that although the black matter is sometimes contained, as in the case of normal pigment, in true cells, usually however irregular in form, it frequently happens that these are wanting, the pigment molecules being deposited in the parenchyma of the affected organ.   Although this description corresponds with what is seen in a microscopic inspection, yet it is questionable whether the pigment is ever deposited originally except in cells; at least the well-ascertained phenomenon of secretion in other tissues is opposed to any other conclusion.   The scattered molecules seen in their sections may be accounted for by the rupture and disintegration of pre-existing cells.

The former history of facial neuralgia, in which, after the operation of dividing the affected nerve, the pain often returned, sufficiently indicated that the nervous tissue was capable of reproduction; an inference since substantiated by the observations of Nasse and others, who have found that, after division, and indeed when small portions were excised, the fibres of nerves become re-formed in part, but they are somewhat smaller in size and fewer in number than in the normal state.

The attempts hitherto made to classify tumours have not been very successful; we do not, however, for that reason despair of an object so important to external pathology being accomplished.   There is a very obvious cause of failure in the fact, that in order to determine the essential characters of tumours, microscopic observation is one of the principal means involved; and we need not remark that this mode of investigation is of very recent application, especially in this country.   That it may often be used most advantageously in practice, we had recently a very conclusive proof, in a case of subcutaneous tumour removed in one of the metropolitan hospitals.   The operator, from the suspicious appearances of a part of the diseased mass, and from its indurated character, was apprehensive that it was of a malignant nature, though another distinguished surgeon thought it was merely a modification of lipoma.   To decide this somewhat doubtful point, a section of the above part was submitted to the

microscope, when the whole was found to consist of two normal tissues, the adipose and the areola, and the fears of malignancy were satisfactorily removed.   Another instance occurs to us of a supposed scirrhous disease of the testis, which was clearly proved, by minute examination, to be nothing more than a deposit of scrofulous matter.   Now, as it is one of the highest privileges of our science to solace human suffering, an un-erring test, and this in many instances microscopic inspection affords, which will enable the surgeon, not by a mere guess unsatisfactory to him-self, but with an assured conviction of the truth of his diagnosis, to inform the patient and his friends that a previously doubtful tumor is not malig-nant, would be to a conscientious practitioner a thing of great price.   For these reasons we do not concur with the opinion of the author, that " all attempts to arrange tumours (as we do animals and plants) into genera and species, must necessary fail."   On the contrary, the very attempts made in the present and other works, and which, imperfect as they still are admitted to be, are of primary importance in practice, pre-suppose that there is a natural system, as in all branches of science.

The classification of Dr. Vogel has nothing of novelty in it, as our readers will gather from the subjoined extract.

"In a histological point of view, tumours may be arranged in two great divi-sions. To the first belong those whose elements may be considered histologi-cally to agree with those of the normal body, and which further being once formed, discharge the duties of the normal constituents of the body, take a part in the general metamorphosis of tissue, and are nourished and increased like other parts. These are homologous, non-malignant tumours.

"In the second division, we must place those whose elements in a histological point of view differ more or less from those of the normal body, and which (as in the process of suppuration) from their nature give way, soften and destroy the or-ganic parts which surround them or which they enclose—heterologous, malignant tumours."—P. 203.

In the account of the individual groups many interesting details are given, which we regret our limits prevent us noticing, excepting in a cur-sory manner. The great obscurity in which the tumours of bone are involved, renders all judicious attempts at simplification and distinctness acceptable. In this respect the several sections treating of fibrous, car-tilaginous, and osseous tumours, may be studied with advantage. Those consisting of cartilage have been divided, since the excellent researches of Professor Müller, into two groups ; the first consisting of true cartilaginous tumours, usually appear as hypertrophy and abnormal growth of bone (as callus, exostosis, &c.), and gradually pass into the osseous tissue ; the second, distinguished by the term *enchondromata*, on the contrary, do not ossify, although they occasionally offer some ramifying cor-puscles suggestive of the well-known osseous lacunæ or bone-cells. En-chondroma appears under three distinct forms ; two of which occur in the bones, and a third, much more rarely, in soft parts, especially in glandular organs, as the parotid, testis and mamma.

"It forms a roundish, and generally smooth tumour of variable size, which on a section being made allows even the unaided eye to recognise two distinct constituents, one fibro-membranous, and the other gray, transparent, and soft, resembling firm jelly or softened cartilage. The latter element shows under the

microscope roundish or elliptic cells varying from the 150th to the 50th of a line in diameter, and sometimes even larger, which enclose a granular nucleus ranging from the 200th to the 300th of a line in diameter."—P. 225.

These tumours are not malignant, are unaccompanied by pain, and are so slow in their development, that they may exist and increase for ten or twenty years, attaining a considerable size without materially incommoding the patient.

"Gluge describes a tumour of this kind, which, on extirpation weighed nine pounds and a half. They may, however, when large, like the non-malignant tumours formerly described, inflame and ulcerate, and become dangerous from the quantity of the discharge."—P. 228.

The central enchondroma is developed in the interior of bones, and is the most frequent of all; it usually appears in the metacarpal and metatarsal bones in the phalanges, as rounded smooth tumours of variable size, encased in a vesicular, expanded, osseous cortex, which is at some points absent, as if the tumour had burst through its wall. Peripheral enchondroma originates on the surface of the bone, and has therefore no bony sheath, being covered only by periosteum. Its form is more irregular than the preceding, and its surface is rendered rugged and uneven by the separate rounded cartilaginous formations which protrude as distinct nodules, varying from the size of a pea to that of a cherry: this form is principally observed in flat bones, namely, the ribs, and cranial and pelvic bones, rarely in the cylindrical class. These tumours were formerly confounded with many others occurring in bones, under the various names of spina ventosa, osteo-sarcoma, osteo-steatoma, &c. (p. 229.)

Under the head of "Encysted Tumours," Dr. Vogel has collected most of the later observations of different pathologists. His definition of this important class is thus given :—

"The true, simple encysted tumours not only possess a perfectly closed membranous sac, but it is also essential to their character, that the contents of this sac are either not at all or only very imperfectly organized, and show no organic connection with the sac itself. This forms the distinction between encysted tumours and the enclosed fatty and fibrous tumours formerly described, in which the envelop, consisting of areola tissue, throws out organized elongations, and processes not only into the substance of the surrounding parts, but even into that of the tumour itself; thus not so much separating the tumour from the surrounding parts, as forming a medium of connection between them."—P. 239.

There is another class, which the author calls, with Müller, cyst-like tumours (cystoid).

The true encysted tumours may be grouped under two tolerably well characterized subdivisions. The first class embraces those which contain aqueous or serous contents, and of which three forms are described: one, of which the hydrocele of the cord, the cysts of the choroid plexus, and especially the cyst of the parenchyma of the ovaries, are examples, is in fact a circumscribed local dropsy, the fluid being effused in a part consisting of lax areolar tissue or under a thin membrane (as beneath a serous membrane): another kind, originates simply in an obstruction of the excretory duct of a secreting organ; it is often seen in the kidney: a third variety, more deserving the name of encysted tumours than the two pre-

·ceding, consists of a perfectly closed cyst, which externally is firmly connected with the surrounding parts, but internally exhibits a smooth surface, which, in the progress of formation becomes invested with an epithelium.

"The second division of the simple encysted tumours is distinguished from serous cysts by the circumstance that the contents do not consist of an aqueous fluid, but contain peculiar corpuscular particles which render them thick and pulpy. They sometimes resemble honey, sometimes boiled groats, and occasionally they have a gelatinous appearance. In accordance with these varieties in the contents, these tumours have received different names, and been termed hygroma, meliceris, atheroma, gummy tumour, &c. Such names are, however, in the highest degree, vague and unscientific."—P. 245.

The inner surface of the cyst is furnished with a decided epithelium, and the cells of this, in a state of successive formation, are continually being thrown off and so form a principal part of the contents, as in the case of the tumours connected with the sebaceous follicles, of which an interesting account has been given lately by Mr. Erasmus Wilson, and other writers. In addition to these cells, fatty matters of various kinds (olein, margarin, cholesterin) are almost invariably present; various extractive matters and salts also form a part of the contents. If the calcareous salts (phosphate and carbonate of lime) are deposited in considerable quantity, the cyst, as well as its contents, becomes entirely or in part converted into a concretion, or, as it is usually expressed, the encysted tumour appears ossified.

The author next describes those remarkable contents of encysted tumours, consisting of masses of hair, bone, teeth, &c.; but, as these are well known, it is not necessary to dwell longer on this subject.

The study of malignant epigeneses or *pseudoplasmata* is attended with more difficulty than even that of homologous tumours. Thus at present some of the primary conditions, essential equally for forming correct generalizations and for arriving at details, are wanting. For example, the true organic relations existing between the normal tissues of the body and malignant productions, are not known; so that it is still a questionable point with some practitioners, whether a tumour, originally and essentially non-malignant, can become malignant in the course of time, from internal constitutional causes, or from external accidental causes, such as a blow. Again, how vaguely are many terms relating to these growths, such as "tubercle," applied; then what uncertainty exists among the generality of medical men, as to the vascularity or non-vascularity of tuberculous matter. It is fortunately true that much of this uncertainty is beginning to disappear before the accurate and extended researches of late years, made with reference to scirrhus, tubercle, &c.; and there can be no doubt that a persistence in the same course will ultimately substitute clear and exact knowledge for the existing confusion and uncertainty. Especially we may hope for the most valuable results, from the sedulous attention that is now paid to morbid states of the blood and nutritious fluids; for the history of these malignant epigeneses, and particularly of tubercular disease, indicates that they are intimately connected with a depraved condition of the circulating fluid. How otherwise can we account for the production of scrofula and phthisis, which are known to arise from habi-

tual residence in a vitiated atmosphere? This enquiry acquires a higher interest than attaches to the discovery of the primary causes of other diseases, both because it promises to lead to more immediate benefits in the way of prevention, and because it relates to a class of affections which, when once established, are at present almost or entirely uncontrollable. Past experience shows in a marked degree, that we are here to look to preventive rather than to curative means of success; a consideration which should induce the medical practitioner to direct increased attention to an improved hygiene.

The distinctive marks of malignant tumours, when contrasted with the non-malignant, are thus given:

"Malign tumours proceed of necessity to softening from esoteric causes; the softening being a necessary consequence of their development.

"This circumstance sufficiently distinguishes the two classes of tumours. But other pathological formations also soften without being, on this account, malignant. Thus, for instance, softening takes place in all suppurations in which the pus is developed from a solid cytoblastema. In this case, however, the morbid epigenesis alone softens, the original tissues taking no part in it; if the pus is evacuated externally or becomes resorbed, they return to their original condition, and resume their previous functions; the affected part, with the exception of some trivial changes which occasionally remain, is restored *in integrum.* The case is far different with malignant tumours. In these the softening is not confined to the morbid epigenesis amongst the original histological elements, but the latter become themselves involved in the process of softening, and are also destroyed, so that the expulsion of the mass from its place of formation is attended with a loss of substance. The softening of the pseudoplasmata, therefore, is not innoxious, but malignant and ulcerative; it consists not in a healthy suppuration, but is a process of ulceration.

"The difference between non-malignant and malignant softening is not confined to the above points; it extends even to the morphological formation of the product of the softening. In the non-malignant softening this consists of the normal pus corpuscles formerly described; in the malignant, on the other hand, of very irregular molecules, which show scarcely a trace of organization, and resemble the products of the putrefaction of organic bodies, mixed with fragments of the destroyed tissues."—P. 262.

The softening usually commences not upon the surface, but in the interior; and, as the product of this change is not therefore immediately discharged, "the ichorous pus continues for some time in contact with the walls of the vessels, and by endosmosis, its fluid parts are taken up into the lymph and blood, exerting a morbific influence, in a manner at present but little understood, upon these fluids, and thus gradually inducing a general cachexia." The author, entertaining these views, attaches a high importance to the removal of the malignant tumour *prior to softening.* He says, the evil consequences just noticed "may be obviated by the removal of the pseudoplasma by operation previous to its softening, and upon this rests the advantage to be derived from the employment of the knife in the malignant epigeneses. In order to be useful, such an operation must be radical, *i. e.* no part of the pseudoplasma should be left behind."

Dr. Vogel subsequently adds, that although tumours absolutely corresponding in all other points with the malignant, may, as in the case of pulmonary tubercle, cause merely local destruction and subsequently heal,

or, as in some scirrhous growths, be removed by surgical operation with-
out recurring, yet these are the exceptions; for " there commonly arise
on other spots of the body, either in the vicinity of the original pseudo-
plasma, or distant from it, simultaneously with the first, or subsequently,
other pseudoplasmata of the same kind." .

With respect to the classification, the author observes :—

" The malignant epigeneses are as little capable of precise classification as the
non-malignant tumours. They may, however, according to the higher or lower
degree of organization which they attain before their disintegration, be reduced into
certain groups, but these are still less strictly separable than in the case of the non-
malignant formations; transitions between the individual forms are of common
occurrence, and, indeed, the same tumour not unfrequently shews totally dissimilar
elements; the reduction of these formations into numerous species with a multi-
plicity of names is, therefore, quite unjustifiable. We discriminate, firstly, pseudo-
plasmata which are slightly or not at all organized, and secondly, such as attain a
higher grade of organization. As representatives of the former class may be pointed
out the depositions in typhus, and in scrofulous tumours ; of the second, encepha-
loid and scirrhus. Many varieties of tubercles form a connecting link between these
leading divisions."—P. 259.

If by organization Dr. Vogel indicates vascularity, we must dissent
from the last paragraph, as, from repeated observation, we are satisfied
that the true scrofulous and pulmonary tubercles are non-vascular. .

As the matter of typhous deposits has not attracted so much attention
as other malignant formations, we extract the following particulars re-
specting it. The most common seat of this epigenesis, although it may
occur in different parts of the body, is, as it is generally known, in the
intestinal canal between the mucous and the muscular coat, in Peyer's
glands (especially at the termination of the small intestines), and in the
mesenteric glands; less frequently in the spleen and lungs, and in and
under the mucous membrane of the trachea.

" These formations usually appear as a more or less firm lardaceous mass of a
yellowish or whitish colour, which is deposited in greater or less abundance, amongst
the normal tissues, gradually softens, and, as the normal elements of the region
become also involved in this process, forms ulcers, which either heal by cicatriza-
tion, or continue until the death of the patient. In many cases death takes place
before the commencement of softening."—P. 272.

There can be no doubt, from the manner in which it fills up all the
interstices of the tissues, which are, as it were, infiltrated, that the mat-
ter is deposited in the fluid state and subsequently assumes the solid form
by coagulation ; the author has never seen an instance in which it re-
mained liquid.

By a microscopic examination, the following constituents are recog-
nised in the mass :—

" 1. An amorphous, semi-transparent stroma.
" 2. Molecular granules from a size too minute to estimate, to the 800th of a line
in diameter ; sometimes interspersed with larger fat globules.
" 3. Larger corpuscles (imperfect cells and cytoblasts) from the 800th to the
300th of a line in diameter, rarely larger. Some of these enclose smaller corpuscles
(elementary granules and nucleoli) which are wanting in others."—P. 272.

· The softening of typhous matter usually proceeds rapidly, following the deposition in the course of a week or less. It is an interesting observation, as indicating an affinity in the results as well as the causes of typhus fever and scrofula, that " the typhous matter cannot be histologically distinguished from the deposits which occur in scrofulosis and tuberculosis."

With respect to the chemical character of this morbid production, Dr. Vogel conceives it to be chiefly composed of the fibrin of the blood, pervaded, however, as in all similar cases, by other elements of that fluid, and poured out in a fluid state from the capillary vessels.

" The question here suggests itself: Is this fibrin normal, or has it, whilst still in the blood, undergone a specific change ? The possibility of such a change cannot be denied, since we know that fibrin is very transmutable : but the assumption of such a change without a demonstration of its nature by organic chemistry, is of no advantage in a scientific point of view."—P. 274.

After stating the possibility that the diminished energies of the original tissues may also be assumed as a probable cause why the exudation does not become organized, the author concludes by saying,

" With this brief view of the subject, I wish to express myself as opposed to the opinion, that there exists in the blood a specific typhous matter, with the deposition of which, in certain parts of the body, the disease localizes itself and terminates. At the same time the local importance of this deposit cannot be questioned. A great number of cases of typhus proceed to a fatal termination from the effects of these depositions, from ulceration, perforation of the intestine," &c.—P. 274.

The second sub-class of pseudoplasmata slightly or not at all organized, are scrofulous deposits, of which *tubercle* is the most important and the most frequent form. Dr. Vogel states, as we have seen above, that scrofulous matter cannot be with certainty distinguished histologically from typhoid or tubercular matter ; but the whole process of deposition and softening is characterized when contrasted with that of typhus by its extreme slowness, occupying in the one case as many weeks or even months as days in the other case. In defining the signification that ought to be attached to the vaguely applied term " tubercle," the author thus expresses himself :—

" Originally the name 'tubercle' was a very general one ; in accordance with its proper signification, it expressed all nodular tumours, and even at the commencement of the present century, Baillie applied the term to fibrous tumours of the uterus. At the present day, however, its meaning is much more limited, and by tubercles we now understand those pathological epigeneses which are engendered in consequence of a specific disease or morbid tendency—*tuberculosis*."— P. 276.

This is a restriction perfectly essential to a correct knowledge of this common and formidable deposit.

As in the case of typhous matter, there can be no doubt that tubercular deposit passes out of the capillary vessels in a liquid form. The most favourable situation to watch the whole process is in the air-cells of the lungs ; but to arrive at certain results perfectly successful injected specimens, in all stages of the disease, are indispensably necessary ; and these, unfortunately, are obtained with difficulty. The following are the re-

sults of our own observations made on such preparations :—When the
deposit is commencing, and when it is in such minute quantity as to
escape the naked eye, the tubercular matter is seen as very small whitish
masses, occupying distinctly a part or the whole of single air-cells, and
presenting a resemblance to minute drops of white wax.   There can be,
as we have already said, no uncertainty as to its original fluid state ; but
we entirely agree with Vogel in asserting, that no one has seen it in that
condition, for the most minute particles recognisable by the microscope are
solid.   As the deposit increases, and as contiguous air-cells become filled
up, the vascular retia on their walls are gradually compressed and ultimate-
ly absorbed ; and thus the previously isolated tubercular masses blend
together, and form the larger accumulations seen by the naked eye, a process
which was first distinctly traced and described by Mr. Rainey.   There is
no reason to suppose that the phenomena are different in other textures,
though of course they must be modified by the local circumstances.   The
account given by the author in the following passage differs in some im-
portant points from what is stated above, and is, we are satisfied, erroneous
in affirming that the normal tissues are usually neither displaced nor alter-
ed : we refer here to such parts as blood-vessels, &c., for it is true that
the elastic pulmonary membrane, in the particular case of the lung, is
not entirely, if at all, destroyed.

  " Whenever tubercles are observed in what may be presumed to be their
earliest stages, they appear solid, form a more or less dense mass, and fill up all
the interstices of the elementary tissues in which they are deposited.   The tissues
are usually neither displaced nor altered by the tubercular matter; on the con-
trary, they in general retain their normal position ; they are, however, as closely
and perfectly invested by it, as the stones of a wall by the solidified mortar which
has been applied between them.   We can most readily convince ourselves of this
condition by treating fine sections of tubercular deposit from the lungs with
acetic acid or caustic ammonia.   By means of these reagents the opaque tuber-
cular matter is rendered transparent, and under the microscope, the enclosed
portions of lung (the intersecting fibres) are perceived to be arranged amongst
the tubercular matter just as in the normal state."—P. 278.

  The microscopical characters of tubercle have been so often described
that it is not necessary again to refer to them.   The author, in noticing
the numerous and conflicting opinions of writers respecting the chemical
composition, says that nothing is at present certainly known, beyond the
fact ascertained by Lehmann and repeatedly confirmed by himself, that
tubercular matter consists principally of a protein-compound.
  In the second great class of malignant formations, Dr. Vogel includes
the various forms of carcinoma—encephaloid (cellular cancer), scirrhus
(fibrous cancer), melanotic (or a combination of melanosis and cancer),
and colloid (gelatinous cancer).   One of the leading principles connected
with the whole class is, that all cancerous affections consist of a new for-
mation, totally distinct from the normal tissues, but mixed up with a
larger or smaller proportion of the original healthy structures ; so that
few, if any, cases of cancer are altogether malignant as to the constitution
of the tumour.
  With respect to the individual varieties of the disease, they vary among

themselves mainly according to the relative preponderance either of the new material or of the normal texture. The microscopical examination of carcinomatous growths, seems to have thrown a more clear light upon the causes of these differences, by showing that, whereas the purely cancerous matter consists essentially of *cells*, variously modified and mixed with a peculiar viscid fluid ; the normal tissues retain their characteristic marks, and may thus be still recognised. That, in scirrhus and other similar affections, a considerable portion of the tumour is often made up either of the original structures of the body, or of fibrin effused by common inflammatory action, has long been known : and herein is to be found the explanation of those cases, which from time to time are adduced as proofs of the possibility of curing these hitherto unmanageable diseases ; the fact being, that the absorbent action is, in these instances, excited, and the healthy tissues, or the inflammatory deposits being removed, it is erroneously affirmed that the special and essential epigenesis is eradicated. It is not necessary to give the author's account of the microscopic elements of cancer, as it does not contain any novel information. The cancerous matter, he believes, as in the case of tubercle, is effused in a liquid form, and so becomes infiltrated into the tissue of the affected part, undergoing subsequently a process of coagulation.

" The cancerous matter occurs between original elementary parts of the parent tissue, and occupies, more or less perfectly, all the interstices. A slight infiltration of cancer in a tissue, frequently escapes the observation of the unaided eye, and can only be detected by careful microscopic examination—as, for instance, in fatty tissues. When the interstices are not thoroughly filled, and the cancerous deposit is soft, the parent-tissue, at least in the first stage, is comparatively little injured. If, on the other hand, the infiltration is complete and the cancerous deposit very firm and solid, then the elements of the tissue become compressed, appearing to be blended with the deposit into a homogeneous mass, and gradually become atrophied and disappear. This disappearance of the elements of the tissues by atrophy and resorption, which is peculiar to the first stage of cancer, previous to softening, must be clearly distinguished from the destruction of the entangled tissue, which is dependant on the softening of cancer, and of which we shall speak presently."—P. 301–2.

The vascularity of carcinomatous tumours varies, as it is well known, in different forms of the affection ; in some cases, blood-vessels are almost or entirely absent ; whilst in other instances, and especially in the soft varieties, as fungus hæmatodes, they are so numerous that, when ulceration has taken place, the exposed surface bleeds on the slightest contact.

The general views of the author, as to the nature and progress of these affections, may be gathered from the following extract, with which we must close our notice of this subject :—

" Simultaneously with the process of development, the cancerous tumour undergoes other changes ; it increases to such a degree, that from a very limited origin it often becomes distributed over a large space, occupying one or even several organs. This enlargement is undoubtedly dependant on the cellular structure of the cancer, and probably also on the fibres acting upon the nutrient fluid in the neighbouring parts, in accordance with the law of analogous formation. The increase of the cancerous cells is forwarded by the circumstance that many of them act the part of parent-cells, and contain in their interior young cells, which in all probability are capable of a similar mode of increase. More-

over the numerous cytoblasts frequently observed in a cell, probably all become themselves developed into distinct cells. With these facts before us, there is clearly no limit to the increase of cancer-cells, neither is there any necessity for regarding them as distinct organisms similar to the lowest fungi and algæ. It is clear, however, that the fibres and the vessels (if any are present) cannot be increased by means of the cancer-cells; in all probability the increase of the fibres—and in fibrous cancer such an increase undoubtedly occurs—is dependant upon the influence of the pre-existing fibres, just as is the case in the growth of pure fibrous tumours. The innate capacity for augmentation possessed by cancer, is very energetic, and forms an essential distinction between cancerous tumours and scrofulous depositions; for, in the latter, this capacity is either altogether absent, or only present to a very slight degree. Hence the growth of cancer is most rapid when an increased cytoblastema is yielded to it from any source, as, for instance, from inflammatory exudation, especially from fibrinous dropsy in the adjacent parts. It always increases on the supervention of softening and ichorous discharge, in consequence of the irritation to which these processes give rise in the surrounding parts. The exudation thus yielded by the neighbouring hyperæmic parts is converted into cancerous matter, and hence cancer is not, as is frequently the case with tubercle, separated from the surrounding parts by granular cells or pus, nor is it retarded in its growth by a line of demarcation. The newly-formed cancerous matter goes through precisely the same course of development as the original; proceeding of necessity to softening. In some cases, we find the peripheral portion of the cancerous matter, and the surrounding parts contending, as it were, for the cytoblastema, and sharing it between them. There are formed, as may be observed in cancerous ulceration, fungoid and extremely vascular granulations; but these are always so infiltrated with cancerous matter, that, after a very brief existence, they soften and become disintegrated, never contributing to the formation of persistent tissues."—P. 304–5–6.

In the 8th Chapter, Dr. Vogel gives a brief but interesting summary of the parasites, vegetable and animal, or, as he terms them, " independent organisms," which infest the human body—a subject of considerable importance in practical medicine, and which has, in late years, attracted a large share of the attention of the most eminent zoologists. In many instances, it is no easy matter to account for, or even to conceive of, the origin of entozoa, and their entrance into the organs where they are met with ; more especially if we adopt, as we are inclined to do, the definition of Vogel, who limits " the acceptation of parasites to those organic structures whose germs have penetrated into the organism *from without.*"

In the case of the entozoa, which have their habitat either in those cavities of the body that have a direct external communication, such as the various intestinal worms ; or which are domiciled in organs having an indirect connection with the exterior, as the distoma hepaticum in the gall-bladder, and even the formidable strongylus gigas lodged in the kidney ; in these and similar cases, although the origin from without may not be very obvious, still it may be comprehended. But what is to be said of those parasites which exist in the parenchyma of solid organs, or in cavities closed in on every side How, for instance, does the trichina spiralis find its way into the very sheath (sarcolemma) of the primary muscular fasciculus, or the cysticercus into the brain or chamber of the eye ? The difficulty of explaining these phenomena by the ordinary mode of reproduction, has led to the idea of spontaneous generation ; a doctrine which, although from time to time still advocated, is opposed to every real advance in the sc'

ence of embryology. In the following extract the author, after setting forth the arguments that have been adduced in favour of this theory, thus opposes them.

" Let us now consult experience for materials in order to reply to this question. We find that in all cases where opportunity has been afforded of tracing, by direct observation, the origin of an organism, it has taken place by propagation; whilst, on the contrary, not a solitary unexceptionable observation of a spontaneous origin exists in the records of natural history. Analogy is, therefore, completely in favour of the view that propagation is the only manner in which existing organisms are engendered.   *   *   *   *   The objections which have been urged against this view, and the arguments which have been adduced in favour of a spontaneous production of parasites, rest chiefly on the ground that in many cases the origin of these organisms, by means of propagation, is inexplicable; and is, therefore, held to be impossible. But it is overlooked that the assumption of their spontaneous origin is in reality merely a formal explanation, which leaves us completely in the dark respecting the true reasons and conditions of their production. Moreover, many of these reasons have latterly become invalidated by the progress of knowledge, since not merely the possibility, but also the reality of their propagation to other organisms, and the inducing conditions, have been demonstrated in various parasites; and although in this respect at present much appears mysterious, yet the numerous experiences of latter years must raise a hope in every unbiassed observer, that the further advancement of knowledge will clear up the obscurity which at present envelops this province, and will establish the origin of all parasites by propagation, to the exclusion of spontaneous origin."—P. 424.

It follows, from this view of the question, that parasites are never a true product of disease, and cannot therefore originate from degenerated particles of the body, depraved secretions, &c.: a position which does not, however, invalidate the commonly-received and firmly-established opinion, that certain morbid changes of the body favour the development of entozoa by furnishing those conditions under which alone these animals can exist.

" Thus, for example, vegetable parasites (fungi) do not in general develop themselves upon mucous membranes, until, by morbid processes, a deposit of coagulated fibrin, which serves as a bed, has become prepared for them, and until this exudation has passed into a state of putrid decomposition. An abundant secretion of mucus favours the development of worms which have entered the intestinal canal from without. Some states of the organism, on the contrary, disqualify it as a habitation for parasites. Thus, most of the entozoa in the intestinal canal are expelled by increased peristaltic action; some fluids of the body, as bile, urine, gastric juice, and some medicines, prove deleterious, and indeed fatal, to some of them; inflammation, or at least suppuration, may injure, and even destroy them."—P. 425.

A part of the mystery still involving this enquiry has been cleared away by the admirable researches of Steenstrup, which were noticed in a former number of this Journal (see Med.-Chir. Rev., July, 1846, p. 22). The leading fact therein demonstrated, that there are, namely, in many classes, and especially among the entozoa, animals which act as nurses, giving birth to new beings without being truly prolific, elucidates many points in the reproductive process of parasites. The generation of the guinea-worm (*filaria medinensis*) is so remarkable as to have given rise to some

doubt as to its real character: " they are viviparous, and contain in their interior such a prodigious quantity of young that some maintain the worm is not an animal at all, but a membranous sheath filled with small worms." It is further peculiar, although the existence of a male is known, that as yet only female filariæ have been found in the human body. It may then be asked—do females alone, while still young but after their impregnation, enter the body, because they there find conditions favourable to their further development ? (L. c., p. 457.) All these circumstances seem to indicate a resemblance to some of the stages described and depicted by Steen-strup ; but it is proper to remark that the nematoidea have not presented to that careful observer any distinct evidence of alternate generations, so that further information is required upon this interesting question.

Among the parasitic animals one of the most curious is the *acarus folliculorum*, belonging to the arachnida, discovered by Simon of Berlin and since described by other observers. It is sometimes spoken of as occurring so frequently that its presence can scarcely be regarded as abnormal. We believe, however, that there is some mistake in this statement: at all events it is no easy matter to procure specimens for the microscope, a circumstance difficult to reconcile with some of the accounts that have been published. According to the author, the a. folliculorum very frequently exists in the hair glands of the human subject, on the nose, upper lip, and the glands of the beard, being sometimes solitary, whilst at other times ten or more are found in a single gland.

There is no subject on which the comprehensive and accurate researches of modern anatomy have thrown so much light, as that relating to malformations. The older observers, troubling themselves but little with the general laws of organization, rested satisfied, like their brethren of the geological school, with regarding all deviations from the ordinary course of things as lusus naturæ. Speaking of these *vitia primæ conformationis*, Bischoff, in his interesting sketch,[*] says justly, " for a long time they were rather objects of affright and aversion, of superstition and of curiosity, than of scientific investigation." It is, however, certain that by far the greater number of congenital malformations are susceptible of explanation according to the known principles of development and of nutrition ; and, when closely scrutinized, notwithstanding the wide departure from the normal process they may seem to present, they fall into definite classes recognisable by the embryologist as belonging to certain phases in the development of the foetus. So much, indeed, is this the case, that the study of malformations and of developmental anatomy mutually illustrate each other ; and it is not too much to affirm that the former, as a philosophical investigation, could never have been successfully cultivated without the aid and the elucidations of the latter.

These considerations will enable us to appreciate the definition which Bischoff has adopted, as best expressing the true nature of these deviations from the normal process of growth. " A malformation is then that deviation of form, affecting either an organism or an organ, which is so intimately mixed up with the primitive mode of origin and of development,

* Wagner's Handwörterbuch der Physiologie. Band I. p. 860.

that it can only happen in the earliest period of the embryonic life, or at least before the term of its completion." The author has given a fuller explanation, but in the same sense, in the following words :

" The peculiarity of these malformations, and their essential difference from ordinary morbid changes, are explained by the following considerations :—immediately after birth almost all the organs exist in a condition which, with slight modifications of form, they retain throughout life. All organs, indeed, grow until they are perfectly developed ; but this growth is, for the most part, merely a simple augmentation of bulk. A few organs only, as the sexual apparatus and the thymus gland, undergo at a later period comparatively important modifications, either developing themselves more highly, or, on the other hand, disappearing. Indeed, in adults, the changes of the body are, in the normal state, almost solely confined to renewal of material (metamorphosis of tissues), whilst the form of the organs, with very trivial modifications, remains unaltered. The case is different with the embryo and fœtus. Here, as the laws of development teach us, the various parts and organs of the body are gradually developed from the simple stroma of the ovum. During fœtal life we have, therefore, not merely *nutrition*, as afterwards, but also *development ;* and whilst, after birth, pathological influences only affect existing structures, or, at most, give rise to the introduction of heterogeneous matters, previous to birth, morbid influences extend their operation even to the development, so that pathological structures are generated, which differ considerably from those occurring after birth."—P. 481.

The preceding remarks apply, it must be remembered, only to derangements of form. There are certain other congenital defects which are dependant upon abnormal nutrition, and which, consequently, do not essentially differ from similar disturbances after birth ; such as encysted tumours and other morbid products. The more limited instances of abnormal position and excess of parts, belong to distinct classes.

The following classification, adopted by Dr. Vogel, is convenient for studying this department of pathological anatomy, if such it can be called.

" *1st Class.* Malformations, in which certain parts of the normal body are entirely absent, or are too small.—Monstra deficientia.

" *2nd Class.* Malformations produced by fusion or coalescence of organs. Coalitio partium—Symphysis.

" *3rd Class.* Malformations, in which parts in the normal state united—as for instance, in the mesial line of the body—are separated from each other—Clefts, fissures.

" *4th Class.* Malformations, in which normal openings are occluded—Atresia.

" *5th Class.* Malformations of excess, or in which certain parts have attained a disproportionate size—Monstra abundantia.

" *6th Class.* Malformations, in which one or many parts have an abnormal position—Situs mutatus.

" *7th Class.* Malformations of the sexual organs—Hermaphroditism."—P. 487.

To these, the author also appends " diseases of the fœtus, and abnormal states of its envelops."

In a subject so comprehensive and at the same time so full of details as the one under consideration, it is impossible to do more than to offer a few observations relating to some of the most important and interesting points. One of the latter is connected with the causes and mode of origin of twin and triplet monsters, whose bodies are more or less extensively adherent or fused, as it were, together. According to some authorities they arise by a coalescence of two separate germs, which to us appears the more

probable explanation ; or they depend, according to others, on a furcation of a single germ.   The author without attempting to decide positively on either of these views, inclines to the latter ; and adduces the following as the chief arguments in its favour.

" 1. The organs that are united are always similar organs; head with head, thorax with thorax, &c. ; a fact that can only be explained in a very forced manner by the assumption of a coalescence of two germs.
" 2. There is a complete transition from the cases where two almost perfect individuals are attached at only a circumscribed spot of the body, to those where one individual bears only some trivial supernumerary parts, or other malformation, as, for example, fissure of the skull ; in short, to cases whose origin no one would ascribe to a coalescence of two germs.
" 3. Finally, it is totally incomprehensible, how, in the case of two separated germs or ova, of which each must have its own membranes, a union of two embryos can take place ; and it is just as little to be comprehended how, in such a union, often more than the halves of the two systems can be so intimately fused together, as we sometimes find to be the case.   These are the principal reasons which lead me to agree in the opinion, that all twin and triplet monsters, with the exception of the cases of *fœtus in fœtu,* proceed from a simple germ, or ovum."—P. 509.

The doctrine we have advocated, to the effect that the larger number of malformations are the result of certain disturbances in the formative process, usually termed " arrest of development," receives the most striking elucidation from congenital defects connected with the termination of the alimentary canal and genital organs.   The clue to this part of the enquiry is to be found in three leading facts :—
    1. That the posterior extremity of the intestinal passage presents in the early stage of its development a cul-de-sac.
    2. That there is subsequently, but still at an early epoch, in both sexes, a cloaca, or common connexion of the genito-urinary organs and the intestinal canal.
    3. That there are in the two sexes corresponding organs—such as the testes and the ovaria—the penis and the clitoris—the scrotum and the labia majora ; and that, in the early development of these parts, they are remarkably similar to each other, so that, till the commencement of the sixth week after conception, the sex cannot be distinguished.   It has even been lately affirmed that there is in the male a representative of the uterus, consisting of a median sinus in the prostatic portion of the urethra.
    A careful examination of specimens contained in anatomical museums, enlightened by a thorough acquaintance with embryology, will enable the observer to comprehend the true nature of these malformations.   Thus, the imperforate anus or the deficiency of the lower extremity of the rectum is evidently dependant on the persistence of the cul-de-sac of the primordial alimentary canal.   The specimens in which the rectum communicates, in the male with the urethra and in the female with the vagina, or in either sex with the urinary bladder, is owing to the original cloacal formation remaining, instead of disappearing, as in the normal process, at about the 10th or 11th week, when the canalis uro-genitalis becomes separated from the rectum and anus.
    The cases in which the greatest difficulties have arisen, and relating to

which the most false notions have prevailed even among medical practitioners, are those that are said to be examples of hermaphroditism.

In former times no doubts seem to have been entertained as to the possibility of the essential organs of generation, by which are meant the testis and the ovarium, co-existing in the same individual. That this was the opinion of Hunter is made evident by his account of the Free Martin, or defective cow-calf. In his introductory observations he says, "as the distinction of male and female parts is natural to most animals; as the union of them in the same animal is also natural to many; and as the separation of them is only a circumstance making no essential difference in the structure of the parts themselves, it becomes no great effort or uncommon play in Nature, sometimes to unite them in those animals in which they are naturally separated, a circumstance we really find takes place in many animals of those orders in which such an union is unnatural." He subsequently expresses his belief that this unnatural hermaphroditism "now and then occurs in every tribe of animals having distinct sexes." Similar views have been prevalent up to a much later period; but it is apparent that, until each successive step in the evolution of the sexual organs in the embryo had been determined, it was not possible justly to interpret the character of the malformations under consideration. The researches of Baer, J. Müller, Rathke, Valentin, and other observers of the present day, which have thrown so much light upon the history of development, have at the same time removed the principal difficulties involved in hermaphroditical conformations, and have necessitated a review *de novo* of the whole question. One of the highest authorities in this branch of anatomical science, Professor Bischoff, and to whose masterly sketch we have already alluded, speaking of the cases formerly recorded, in which male organs were affirmed to exist on one side of the body, and female organs on the other; or in which male and female organs were supposed to be present on both sides in the same individual, judiciously observes, "there are so many probably explanations derived from the history of development as to how these appearances may have originated, partly owing to an arrest of formation, and, partly owing to modifications of individual types of development, that I cannot arrive at an unqualified decision." He afterwards expresses himself more definitely :—" if my view of the so-called hermaphroditical formations be correct, then, strictly speaking, there are none such in the higher animal forms and man ; that is, there is no contemporaneous presence of testes and ovaria in one and the same individual: there are, respect being had to these essential organs, only male and female individuals."

We have already said that the complex and peculiar formations connected with the inferior part of the intestinal canal (representing the future rectum), and in an especial manner the complex productions and metamorphoses of the allantois within the body, and of the uro-genital canal, bear intimately upon the question under consideration. It is essential to know, for example, that in the early state of the embryo, the clitoris and the penis have a perfect resemblance to each other ; that each possesses a particular groove; that there are in the male cutaneous folds corresponding to the labia majora of the female ; that these folds are at first separated by a fissure ; and that subsequently they unite to form the

scrotum, the prominent suture or raphé indicating their line of junction. The existence, in both sexes, of the peculiar glands called Corpora Wolffiana and the destination of their exeretory ducts, are also points of importance ; nor should the prostate and Cowper's glands, developed apparently in the female as well as the male, be overlooked. Taking these facts as a guide, it becomes apparent that by far the larger number of the so-called cases of hermaphroditical malformations can at once be referred to certain modifications either of the male or female organs; and doubtless all of them would be thus interpreted, if they were thoroughly investigated. The author is evidently inclined to this opinion, speaking in most doubtful terms of the existence of true hermaphroditism. The most ordinary forms of false hermaphroditism are, in the female, the disproportionate size of the clitoris, so that it may be mistaken for the penis ; especially if, which sometimes happens, there is an opening or an inferior channel connected with the clitoris, somewhat resembling the male urethra.

"If, at the same time, as is frequently the case, there is constriction of the vagina, considerable development of the hymen, tumefaction of the labia pudendi, approximation of the total *habitus* to the male sex by deep voice, traces of beard, and slightly developed mammæ ; such individuals may be easily mistaken for men."
—P. 521.

The most common form of " false hermaphroditism in the male sex, arises from the urethra being fissured beneath and atrophied (*hypospadias*), while, at the same time, also, the scrotum and even the perineum are cleft, so that the fissure resembles the female vulva ; the resemblance being increased by the circumstance, that, like the latter, it is lined with a soft, red, mucous membrane.

"Generally, also, in such cases, the testicles have not descended (*cryptorchismus*), which adds to the deception, so that such individuals have been frequently taken for girls until the period of puberty, when they have suddenly changed into men."—P. 522.

There are some other malformations in the male which have led to a similar error ; as where fissure and eversion of the urinary bladder have been mistaken for a vagina ; especially if, at the same time, the penis is atrophied and cleft upon its upper side—(*epispadius*.) In rarer cases, the approximation of the male genitals to the female *habitus*, is produced by the penis being attached to the scrotum by adhesions ; it is thus drawn downwards, and appears to have vanished ; the deception is further favoured when the testicles do not descend.

In dismissing this subject, it will not be superfluous to call attention to the fact, that a large number of these so-called cases of hermaphroditism have been examined only during life, and therefore most inefficiently ; that the accounts of them have for the most part been drawn up by persons unacquainted with developmental anatomy ; and that, even when the parts have been inspected post-mortem, instead of having been submitted to a rigid scrutiny, the most superficial investigation has satisfied the enquirer, so that such an obvious proceeding, for example, as the application of the microscope to determine whether a doubtful organ was a testis or an ovarium, has not been adopted.

We must here conclude our remarks of Dr. Vogel's Treatise, and although, as already stated, we think there is less of originality than might justly have been expected from a writer who stands so high as a pathologist, and fewer of those philosophic generalizations, which the character

of the work would seem to demand, we can strongly recommend the volume now translated to the favourable notice of our readers. In the course of this article, we have not alluded to the English editor, Dr. Day, because, as that gentleman states, the additions he has made are unimportant. We cannot, however, conclude without bearing our testimony to the very efficient manner in which Dr. Day has executed his task; the whole volume indeed, owing to the omission of all German expressions, reads like an original work. The numerous plates, selected principally from the author's " Icones Histologiæ Pathologicæ," form a very important addition to the text, illustrations being an almost indispensable accompaniment of descriptions relating to minute anatomy.

I. Dictionary of Practical Medicine. By *James Copland*, M.D., F.R.S., &c. &c. Parts X. & XI. Article, Pestilence. London, Longman & Co. 1846–7.

II. A Treatise on the Plague; more especially on the Police Management of that Disease, illustrated by the Plan of Operations successfully carried into Effect in the late Plague of Corfu. With Hints on Quarantine. By *A. White*, M.D., Deputy Inspector-General of Hospitals, &c. Octavo, pp. 342. London, Churchill, 1846.

There is no subject in the whole range of Medical Science of such wide and momentous interest, alike to the physician and to the public at large, as the history of Pestilential Diseases—including their probable mode of origin; the various circumstances of climate, season, locality, &c., which seem either to promote or to check their development; the causes of the changes or phases which they occasionally exhibit; the laws of their propagation and diffusion; their influence upon population; the effect of quarantine and other restrictive measures upon their progress; the operation of medicinal and hygienic treatment upon individual cases, and also upon the general mortality in a community; as well as various other questions of minor note that must suggest themselves in so comprehensive an enquiry. By the term " Pestilence," has generally been understood any malignant and rapidly fatal *Epidemic*, or extensively diffused distemper. It has been used, therefore, not so much to designate any particular disease or set of diseases, as to denote the general feature or character of their prevailing within a short period over a large extent of space, and of their proving, at the same time, highly destructive. Dr. Copland however employs the word in a more limited, and in a somewhat peculiar, sense. " Under the head *pestilence*," says he, " I comprise certain maladies which have appeared as wide-spreading and devastating epidemics, but which have surpassed all other epidemics in their rapid extension, in their fatality, and in the duration of their prevalence." He goes on to remark that these " certain maladies," although usually prevailing epidemically, may occur

also in a sporadic form. The attribute of *epidemicity* might thus seem to be not necessary to the existence of a pestilence; but Dr. C. guards himself against this objection, by stating that it is to "the irruptions of these maladies, to their rapid extension, and to their great fatality, the generic term *pestilence* may be justly applied." Why Dr. C. should have deviated from the ordinary view of the question, and also have limited the term to three diseases, viz., Epidemic Cholera, Yellow Fever, and the Plague, or, as he calls them, the Choleric Pestilence, the Hæmagastric Pestilence, and the Septic or Glandular Pestilence, is not very apparent; unless, indeed, he considers that this triad is possessed of certain characteristic features in common, peculiar to themselves, and distinguishing them from all other maladies to which the appellation of "pestilential" has usually been applied. Whether he has acted wisely in so doing, we shall not now wait to enquire. That this arrangement has had its effect in leading Dr. Copland to adopt some very peculiar views, as to the origin and diffusion of the diseases in question, will appear when we come to examine the details which he has adduced upon these very important subjects. He loses no time, we may remark, in announcing, at the very threshold of the enquiry, his strong and decided opinion, not only that the three pestilences named are essentially *infectious*, but also that this property of *infectiousness* has always operated as the most influential cause in their dissemination. The reader is thus at once prepared for what awaits him in the perusal of the sequel : we need scarcely say that our author displays his accustomed industry and erudition in endeavouring to substantiate the views which he has adopted. It is to a patient and candid examination of the proofs and arguments which he adduces, that we now invite the attention of our professional brethren.

As it is most necessary, in scientific discussions, that the exact signification of the technical terms or phrases employed should be clearly understood by all parties, we have to observe, that whenever the words *infectious, infection, &c.*, are used, we wish to denote that property of certain diseases being communicable from one individual to another, in consequence of certain effluvia or morbific miasms emanating from the body of the sick, and acting, through the medium of the respired air, upon that of a person in health. Scarlatina, Measles, and Hooping-cough, are universally admitted to be *infectious* diseases, in this acceptation of the word. The epithet *contagious*, on the other hand, ought assuredly to be restricted to such diseases as are communicable only by *contact*, and not by any vitiation of the atmosphere with morbific effluvia, in the manner we have just alluded to. We would suggest the term *contagio-infectious*, to denote those that are capable of being communicated in both ways. To this latter class belong Small-Pox, Hospital Gangrene, and perhaps also Glanders and Puerperal Fever. The importance of attending to these distinctions will be perceived in the course of our enquiries, more especially when we come to notice (once more) the last of the three Pestilences on Dr. Copland's list.

But, before concluding these prefatory remarks, we must not fail to allude to a circumstance of the very highest interest in the general history of Infection, and one which requires to be most assiduously kept in mind whenever an attempt is made to determine whether this property

belongs to certain diseases or not.   The point to which we refer is thus very accurately set forth by Dr. Copland in the following passages, from the article " Infection," in his elaborate work :—·

" It may be stated as an axiom, that the foul air generated by the crowding of many persons, or animals, even in health, but more especially in disease, into a confined space, as in the wards of hospitals, &c., or by few persons only in the same apartment, if their diseases be attended by copious discharges, will infect those who breathe it in a state of predisposition, with low fever, dysentery, &c. ; and that the persons thus infected will communicate the malady to others similarly predisposed."

· Again, we thus read in another passage :

" Diseases may take place sporadically, or from local causes ; and, owing to various circumstances acting either in close succession or coetaneously, the circulating and secreted fluids, and even the soft solids, may be so changed during its course as to emit an effluvium contaminating the surrounding air, and thereby infecting many of those who breathe this air in a sufficiently contaminated state ; and thus it will be propagated to several, and from these to others—especially under favourable circumstances of temperature, humidity, electrical conditions, and stillness of the air, and of predisposition on the part of those who come within the focus of infection, Thus diseases *may become infectious and epidemic,* aided by the constitution of the air and other circumstances ; and, after a time, cease and entirely disappear with the circumstances which combined to propagate it."

This very lucid description of what is usually meant by the expression " contingent" or " conditional infection," deserves especial notice, as bearing, in no indirect manner, on the history of Epidemic Diseases in general.*
Other passages, inculcating the same views, might be quoted from the Dictionary of Practical Medicine ; but these now given will amply suffice.

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* In a recently-published pamphlet we expressed the same doctrine, in the following terms :—

" Whenever a number of human beings, even in a state of health, are cooped together in a narrow, ill-ventilated space, the air gradually becomes so contaminated by the effluvia given off from their bodies, that, in the course of a more or less limited space of time, Fever will almost inevitably make its appearance among them ; and this fever, so generated, will often be found to exhibit *infectious* properties, if the sick are not removed to a more airy and wholesome locality. Something of this sort was observed in the case of most of the 23 survivors of that dreadful night when upwards of 140 human beings were shut up in the Black Hole at Calcutta. We have daily illustrations of the same fact in what takes place on board troop and slave ships, in jails, crowded penitentiaries, and so forth.
" If such, then, be the case with persons in health, can we wonder that the effluvia from the bodies of the sick must be still more poisonous and contaminating ? If any one has a doubt upon this score, let him walk from the open air into the ward of a hospital, when all the windows have been closed for a time ; a sense of nausea and oppression, accompanied not unfrequently with actual shivering, are often immediately experienced.
" Now, it is in the way we have just mentioned that various maladies, which are certainly not primarily or essentially infectious, are apt to become so in impure and badly-ventilated situations, more especially when many sick are crowded together. The infectiousness is not a necessary quality of the disease ; it is an

Now, if the doctrine of Contingent Infection be admitted—and where is the enlightened reader who will dispute its truth?—it is obvious that, to talk of medical men being of a necessity either "infectionists," or "non-infectionists," in reference to certain diseases—as if they must positively make up their minds either to admit or to reject *in toto* the communicability of these diseases under all circumstances—is not dealing quite fairly with the question. To call those who hold the doctrine just mentioned "non-infectionists," is clearly to mislead the unpractised reader, by leaving an erroneous impression upon his mind. Let us take an example. If the broad and general question, "Is Erysipelas or is Dysentery infectious?" were put to a physician, he might with perfect truth and propriety answer it in the affirmative ; and yet all that he meant by such a response might be the simple declaration of his opinion that these diseases are occasionally or conditionally communicable from one person to another, although such an occurrence does not happen once in a thousand times, and only under very peculiar circumstances. It would be wrong, however, to assert, without any qualification, that the physician in question was either an infectionist or a non-infectionist. Now, as it is with Erysipelas and Dysentery, so it may be with malignant cholera. To adduce a few instances wherein there has seemed to be a transmission of the disease from one individual to another—and this, too, be it remembered, not in *sporadic* cases, but when an acknowledged *epidemic* is prevailing at the time—cannot satisfy any dispassionate enquirer that the disorder should be placed in the same category with Scarlatina or Measles. But the mere determination of the question, whether a disease like Pestilential Cholera is *ever* infectious, is far from being either the most difficult or most important point in our enquiries. We have to ascertain whether this property of infectiousness is primary, essential, and permanent, or only contingent, conditional, and occasional ; whether the attacks of the pestilence can, with any show of probability, be attributed to personal infection from one individual to another ; whether its dissemination from one district to another, and from one country or continent to another, can be fairly traced to this agency ; and whether there be any rational grounds for hope that its progress may be arrested, or its invasion prevented, by any of those means of restraint or precautionary regulations, comprised under the general term of Quarantine. These are the really momentous problems in the enquiry to be discussed ; and not the very minor one, whether the disease has, upon any occasion, manifested infectious properties. Medical men have too often allowed themselves to be altogether occupied with the history of insulated facts, and have neglected to view the question in its

accessory or contingent attribute. Various forms of low or typhoid Fever, Erysipelas, Dysentery, Angina, &c., may be mentioned as affording not unfrequent examples of the phenomenon in question. The consideration of this subject teaches us two important lessons. In the first place it inculcates the imperious necessity of thorough cleanliness and free ventilation, wherever a multitude of sick persons are congregated together ; and in the second, it exposes the absurdity of the disputes which have so often taken place about the infectiousness or non-infectiousness of several diseases."—*Quarantine and the Plague*, 8vo. pp. 71, Highley, 1846.

broad and more general bearings. They seem to have been examining the eddies by the shore, and to have forgot all the while to watch the great current of the ocean stream.

With the view of keeping our readers' attention steadily directed to the topic most worthy of consideration, we shall occasionally in the sequel employ the terms " importationist" and " non-importationist," in place of those of " infectionist" and " non-infectionist," in more common use.

Having cleared our way of any difficulties arising from the ambiguity of certain technical expressions, we should now at once proceed to examine the arguments adduced by Dr. Copland to show that pestilential cholera is not only essentially and primarily communicable from one person to another, but also that its wide diffusion and extension have been chiefly attributable to this property of infection. But, before we can do this with any advantage, we must first investigate a point in the history of the disease on which our author dwells with great emphasis, and the right determination of which is very intimately connected with our ulterior enquiries.

Dr. Copland divides Cholera into three species; 1, the bilious; 2, the flatulent; and 3, the spasmodic, or *mort de chien* of East Indian writers; while what has been generally termed the Epidemic or Pestilential disease is declared by him to be not Cholera at all, but a distemper that is *sui generis,* essentially and fundamentally distinct not only from the various species of Cholera now enumerated, but also from all other diseases, and which he proposes to designate by the appellation of " Asphyxia pestilenta." He employs indeed the term of " Choleric Pestilence; but only for the sake of convenience. Now the main question comes to be, how are we to distinguish between the malignant or aggravated form of endemic Asiatic Cholera, so well known to, and so well described by, many E. Indian writers during the latter part of last century and the beginning of the present one, and this pestilential disease, which Dr. Copland considers to be of very recent origin and of an essentially different nature. Let us see what he says upon the subject; and, first of all, we shall look at the definitions which he has given of these two fundamentally-distinct disorders.

" Spasmodic Cholera" is defined thus : *vomiting and purging of watery matters, without any appearance of bile ; spasms violent and extending generally through the frame ;* (it is subsequently said, " spasms of a violent, painful, and tonic character, attacking the muscles of the abdomen, thighs, legs, thorax, and lastly the arms and hands ;") *speedily followed by sinking of the powers of life.* This disease is *endemic* in some inter-tropical countries. Sometimes, Dr. C. says, it has prevailed *epidemically;* and then he admits that it " nearly approaches" the pestilential disease ; viz., the Asphyxia pestilenta. *He does not consider it to be* infectious. Let the reader particularly mark this point.

On the other hand, the definition of the " Pestilential Disease" stands thus :—" *Anxiety and oppression in the chest, epigastrium and præcordia ; disturbance of the bowels, with nausea, faintness, giddiness, and depression of vital power ; frequent ejections of an offensive fluid, resembling rice-water, from the bowels and stomach, followed by spasms, tremours, distress ; a cold, clammy, purplish, and shrivelled state of the surface ; coldness and rawness of the expired air ; a sense of painful or burning heat at the epigastrium, with*

urgent thirst, and rapid disappearance of the pulse ;—the distemper being often preceded by indigestion and diarrhœa, and frequently followed by febrile reaction, affecting chiefly the brain and abdominal organs."

The one definition is certainly considerably fuller than the other ; but where, it will be asked by many, is the material difference between them ? In the latter, the general appearance of the patient, the state of the surface of the body, and the rapid sinking of the pulse are made prominent characteristics ; but then, if we turn to Dr. Copland's own description of the bad cases of the Spasmodic Cholera, what do we read ?

" In the course of a few hours," says he, " the features shrink, the hands and feet become cold and clammy, the exacerbation of the spasms force out a cold clammy sweat on the face and breast, the pulse is extremely small and weak, or nearly disappears ;—in a case which came before me in Africa in 1816, the pulse could scarcely be felt four hours from the attack.   *   *   *   *   The powers of life fail very rapidly ; the eyes sink and are surrounded with a livid circles the countenance assumes a remarkably anxious cast, or is pale, wan and shrunk ; and the spasms extend to the very fingers. The breathing now becomes extremely laborious ; the patient is restless, and at last is carried off, sometimes in the space of ten or twelve hours."

The accuracy of Dr. Copland's description is well shown by comparing it with the accounts left us by Curtis, Girdleston, Duffin, and other medical men who wrote upwards of seventy years ago. Take that of Curtis, a naval surgeon, writing of the *mort de chien*, or the malignant endemic cholera, at Trincomalee in 1782 :

" In all of the cases, the disease began with a watery purging, attended with some tenesmus, but with little or no griping. This always came on some time in the night, or early towards morning, and continued some hours before any spasms were felt.   *   *   *   *   *   *   *   The purging soon brought on great weakness, coldness of the extremities, and a remarkable paleness, sinking and lividity of the whole countenance. Some at this period had some nausea and retching to vomit, but brought up nothing bilious. In a short time, the spasms began to affect the muscles of the thighs, abdomen and thorax, and lastly they passed to those of the arms, hands and fingers.   *   *   *   The hands now began to put on a striking and peculiar appearance. The nails of the fingers became livid and bent inwards ; *the skin of the palms became white, blanched, and wrinkled up into folds, as if long soaked in cold water.*   *   *   *   *   * All this while the purging continued frequent, and exhibited nothing but a thin watery matter or mucus. In many, the stomach became at last so irritable that nothing could be got to rest upon it ; but every thing that was drank was spouted out immediately, without straining or retching. The countenance and extremities became livid ; the pulsations of the heart more quick, frequent and feeble ; the breathing began to become more laborious and panting ; and, in fine, the whole powers of life fell under such a great and speedy collapse, as to be soon beyond the power of recovery."

Girdleston has described with equal accuracy the disease as observed by him in the naval hospital at Madras, in the course of the same year, 1782. One passage in his description is remarkable.

" The hands and feet generally become sodden with cold sweat ; the nails livid, the pulse more feeble and frequent, *and the breath so condensed as to be both seen and felt, issuing in a cold stream, at a considerable distance.* The thirst was insatiable, the tongue whitish but never dry ; vomitings became almost incessant ; the

spasms, cold sweats and thirst increased with the vomitings.　＊　＊　＊　＊
＊　＊　Some died in the first hour of the attack; others lived a day or two with remissions."

It would be easy to adduce from other writers descriptions of the *mort de chien*, corresponding in almost every particular with the definition of the pestilential disease given by Dr. Copland. But this must surely be unnecessary after the preceding details. We shall therefore only allude to the published evidence of one or two gentlemen who were in India for several years before, as well as after, the outbreak of the great epidemic of 1817—at which period our author supposes that his " Asphyxia pestilenta" first manifested itself,—and who must therefore have been fully competent to judge of the question under consideration.

" The disease in the 9th Reg. N. I. in 1814," says Mr. Duncan, in a report, dated September 1819, " resembled in every particular (with the exception of the heat at the præcordia) the Cholera at present so common, although it could not be called epidemic."

Mr. Cruickshank has given a more minute description of the disease of 1814. The following is an extract from a report that was sent in by this gentleman to the Madras Government.

" When taken into hospital," Mr. C. observes of the first cases he saw, " they exhibited all those symptoms, now ' so well known, of persons labouring under the advanced and fatal stage of Epidemic Cholera; the skin cold, and covered with cold perspirations ; the extremities shrivelled, cold, and damp ; the eyes sunk, fixed, and glassy, and the pulse not to be felt. These persons all died, and I find, on referring to such notes as I have preserved, that, influenced by consideration of the vascular collapse and total absence of arterial pulsation, I had denominated the disease Asphyxia. Many sepoys were brought into hospital in circumstances approaching to those above detailed. Of them, in a considerable proportion, the disease terminated fatally. Thus the cases which I first saw of this malady, in the aged among the camp-followers, differed in no respect from the worst cases of that affection since so well known under the name of Spasmodic Cholera. That name, however, I did not adopt, neither in my public reports nor in the private notes which I took at the time. In this I was chiefly influenced from considering the nature of the matter ejected by vomiting and by stool, which in cholera is said to consist of bile, but which in these cases was aqueous or mucilaginous. Besides, it was evident that the diluent treatment, recommended in cholera, would never be applicable to such a disease as that with which I had to contend. I continued, therefore, to employ in my reports the term ' bowel-complaint,' both because I found it in the hospital-books on joining the corps, and because, if it conveyed no very precise idea of the malady which it was meant to designate, it was at least an appellation whence no erroneous impressions could be derived."

After the perusal of these extracts—and they might easily be multiplied if need were—few readers, we should suppose, will be able to discover for themselves the diagnostic differences of two diseases, which are, however, declared by our learned author to be essentially distinct from each other. That he should, notwithstanding such evidence (with which he must be perfectly well acquainted), heroically maintain that there is " a marked distinction" between the malignant form of endemic Cholera, known by the name of the *mort de chien*, and the epidemic disease which has attracted so much notice for the last 30 years, seems indeed very sur-

prising. Yet, he confidently assures us that he is fully convinced of the fact. Nay, he does not hesitate boldly to declare that in the correctness of his opinion—viz. that the former disease does not exhibit the pathogno-monic symptoms of the latter—" he is borne out by the experience of every well-informed and candid observer, who has seen the disease in this country." Strange assertion!—from one, too, who has never witnessed a single instance of Spasmodic Cholera in the East Indies, and in the very teeth of such men as Dr. Johnson and Mr. Ranald Martin—not to enu-merate a host of other Oriental authorities—who have expressly declared the very contrary in their writings. Indeed, we in vain search for any tes-timonies among our East Indian practitioners in support of this singular dogma of Dr. Copland. On this ground alone, therefore, we might very fairly declare it to be utterly erroneous. But, as the correct solution of the point at issue has a very direct bearing upon the still more important question of the alleged infection (the *importable* infection, be it always re-membered) of the disease, we are disposed to devote a page or two more to the subject, with the view of giving an ample opportunity to our author to produce his reasons for the singular opinion which he has adopted. In the section on the Diagnosis of the Pestilential Cholera, we come to the following passage :—

" In the Spasmodic or severe form of sporadic* Cholera, the discharges from the stomach and bowels are certainly either not coloured by bile, or but little, except-ing at the commencement, and when the disease begins to yield; but they are ac-companied with a different train of symptoms. The spasms are more tonic, and confined more to the muscles of the abdomen and of the thighs and legs, than in the Pestilential disease : and, in the former, the vertigo, deafness, headache, marked affection of the respiratory function, and of the circulation, characterizing the latter, are entirely wanting.
" In sporadic or Bilious Cholera, the very dark, thick, and ropy appearance of the blood; the cold, wet, and shrivelled state of the surface, and its leaden, dark, or pur-plish colour; the almost total absence of pulse at the wrist; the very marked and rapidly increasing collapse of the powers of life; the disagreeable and earthy colour of the body, even during the life of the patient; the burning sensation between the scrobiculus cordis and umbilicus; the complete arrest of the glandular secretions; the cold tongue and mouth; and the coldness of the respired air, which characterize the Pestilential disease, are entirely absent."

It is scarcely necessary, we should think, to offer any comments upon these remarks. No one requires to be told how to distinguish the pesti-lential from the common bilious form of Cholera : the difficulty lies in dis-tinguishing the former from the spasmodic or malignant form of the en-demic disease of the East Indies. We doubt much whether " the vertigo,

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* The epithet " sporadic" cannot be correctly applied, at least by Dr. Copland, as a distinctive appellation of the malignant endemic Cholera; for he has already ad-mitted, on the one hand, that this disease occasionally prevails *epidemically*, and, on the other, that the Pestilential disease sometimes appears *sporadically*. It would almost seem from this misapplication of the term by our learned author that, in spite of his strong prepossessions to the contrary, he had unconsciously been led to re-cognise the truth of the general opinion, that Malignant Cholera and his new Pes-tilence are one and the same disease; the former being its sporadic, the latter its epidemic form.

deafness, headache, marked affection of the respiratory function and of
the circulation," that are alleged to be characteristic of the former, will
much assist the practitioner at the bed-side of his patient. As to the
gratuitous assumption that " the absence of the bile" in the one disease
" is to be imputed to spasm of the common biliary duct rather than to a
suppression of the secreting and excreting functions, whilst in Pestilential
Cholera, these functions are altogether arrested," it is quite obvious that
it will never do to rest a diagnostic discrimination upon any hypothetical
distinctions. We must look at facts, not fictions, in forming an opinion
upon such a point. Now, what says our author himself—not to quote any
foreign or intrinsic authority—upon the necroscopic state of the biliary
organs in these two diseases, that are said to be " different in all their rela-
tions" ? In the description of Spasmodic Cholera, given at page 322 of
the 1st vol. of the Dictionary, we are told that, " in fatal cases, the liver
has been found congested, the gall-bladder and hepatic ducts filled with
dark-coloured inspissated bile ;" and at page 106 of the 3rd volume, in
the account of the *post-mortem* appearances of the Pestilential Disease, we
read that " the liver is generally pretty full of dark-coloured blood ; the
gall-bladder often much distended with tenacious ropy bile, of a dark
yellow or green colour." Where, pray, is the difference between these
two statements ? Dr. C. adds, " the urinary bladder is always contracted
and empty." The same necroscopic appearance was observed in fatal
cases of malignant Cholera 70 years ago ; for we are expressly informed
by Mr. Davis, who was a member of the Madras Hospital Board in
1787, that " the bladder was most singularly contracted, and did not ex-
ceed in size a large nutmeg."

There is another alleged diagnostic mark upon which Dr. C. lays much
stress. He says : " *The secondary fever and consecutive phenomena*, which
follow upon the cold and blue stage of the malady, also furnish remarkable
proofs of dissimilarity between the Pestilence and the severe forms of
Cholera observed in hot countries............After these latter, the patient
recovers without any consecutive disease, and frequently the tumult of the
frame leaves it benefited by the changes it induces ; but, in the present
pestilence, the consecutive states of the disease are as dangerous as the
blue stage." Now, Dr. Copland does not require to be informed that the
secondary fever, to which he alludes, was of infinitely greater frequency in
Europe than in India ; and, indeed, this very circumstance has been par-
ticularly dwelt upon by almost all writers on the subject, as one of the most
prominent features of difference between the disease as seen (more espe-
cially on its first outbreak) in its primary and indigenous seat in the East;
and when it became transplanted into more temperate climates, it ap-
peared to assume something of the type of the endemic fevers of the
countries which it visited. Without pursuing this subject, we shall merely
give one short passage from the Madras Report in confirmation of the
first clause of this sentence.

" When medical aid is early administered, and when the constitution is other-
wise healthy, the recovery from an attack of (epidemic) Cholera is so wonderfully
rapid, as perhaps to be decisive of the disease being essentially unconnected with
any organic lesion. In natives of this country especially, in whom there is ordi-
narily very little tendency to inflammatory action, the recovery from Cholera is

generally so speedy and perfect that it can only be compared to recovery from syncope, colic, and diseases of a similar nature; but in Europeans, in whom there is a much greater tendency to inflammation and to determinations to some of the viscera, the recovery from Cholera is by no means so sudden or so perfect."

We have already seen that Dr. C. admits that the Spasmodic Cholera or *mort de chien* sometimes prevails *epidemically*, and that then it approaches very nearly to the pestilential disease of 1817. As the admission of this circumstance is of very material consequence in investigating the true nature of the latter, it may be worth while to adduce one or two authentic instances of the fact mentioned, in the way of illustration. In the Bengal Report, we are informed that—

"A division of Bengal troops, consisting of about 5000 men, was proceeding, under the command of Colonel Pearse of the Artillery, in the Spring of 1781, to join Sir Eyre Coote's army on the coast. It would appear, that a disease resembling cholera had been prevalent in that part of the country (the Northern Circars), some time before their arrival; and that they got it at Ganjam on the 22nd March. It assailed them with almost inconceivable fury. Men, previously in perfect health dropt down by dozens; and those even less severely affected were generally dead or past recovery in less than an hour. The spasms of the extremities and trunk were dreadful; the distressing vomiting and purging were present in all. Besides those who died, above five hundred were admitted into hospital on that day. On the two following days, the disease continued unabated, and more than one half of the army was now ill. In a note it is added, 'the occurrence of the disease on this occasion is noticed in a letter dated 27th April, 1781, from the Supreme Government to the Court of Directors; and the destruction which it caused in this detachment mentioned in terms of becoming regret.'

"After adverting to its progress in the Circars, the letter thus proceeds: 'The disease, to which we allude, has not been confined to the country near Ganjam. It afterwards found its way to this place (Calcutta): and after chiefly affecting the native inhabitants, so as to occasion a great mortality during the period of a fortnight, it is now generally abated, and pursuing its course to the northward.' It would have been interesting to have traced this disease, as it seemed to have put on the Epidemical form, but every attempt to discover its further progress has proved fruitless."

In the same Report it is stated, that, " in the month of April 1783, Cholera destroyed above 20,000 people assembled on occasion of a festival at Hurdwar." Sonnerat, in his travels, alludes to an epidemic which very closely resembled the recent pestilence, and which, in one visitation, carried off above 60,000 persons from Cherigam to Pondicherry! " The Indian physicians," he says, " could not save a single person." Mention is made by this author of a still more destructive outbreak of the pestilence, two years later. Whoever reads his narrative cannot hesitate for a moment in recognising all the characters of Epidemic Cholera.

After quoting several other instances of a similar nature, Mr. Ranald Martin very emphatically remarks:

" It thus appears clearly that Epidemic Cholera prevailed *at various remote periods*, and at many of the principal stations throughout British India, sometimes coming as a wide-spread pestilence, and, at others, deso-

lating only particular localities."* Yet in spite of all this, Dr. Copland does not hesitate to declare " that the accounts, which we possess of the epidemics and pestilences which have ravaged various countries (Hindostan, among the number; *Rev.*) in former times, do not furnish us with the history of any disease which may be considered as identical in its nature with this pestilence; and that it must, owing to this circumstance, and to the uniformity of its characteristic phenomena, be viewed as being of modern origin (1817), and *sui generis.*" Now, we are not surprised that Dr. C. so resolutely maintains the position which he has taken up; as it is quite obvious that, having admitted (as he has done) that the spasmodic Cholera of the East is *not infectious,* he would be obliged, by the very force of common consistency, to view the Pestilential disease in the same light, if there be in truth no essential difference between the two maladies. We are quite willing to leave the facts already quoted, and the inferences plainly deducible from them, to speak for themselves.

Before, however, quitting this part of our subject, it may not be amiss to remind our readers that a malignant form of Cholera, resembling in most respects the endemic disease of the East, was not uncommon in this country in the time of Sydenham, who has described it with his usual accuracy. After relating its symptoms, and mentioning that it was almost invariably limited to the month of August, he very pointedly alludes to the marked difference between it and the more common bilious form of cholera, such as is met with at other times of the year; " as if," says he, " there lay concealed some peculiar condition of the air of this particular month (August), which is capable of communicating either to the blood or the ferment of the stomach a sort of specific alteration, adapted only to this disease." It is worthy of notice that the Bombay Report alludes, in very emphatic terms, to the resemblance in the features of the disease depicted by our English Hippocrates, and those of the epidemic from which India was at that time (1819) suffering; and Mr. Martin likewise has taken an opportunity of remarking that " many of the cases described by Sydenham would seem to have been of the true spasmodic nature."

The pernicious Intermittent Fevers also, so faithfully pourtrayed by several of the older physicians, occasionally exhibited a train of symptoms that bore a very close resemblance to those of malignant Cholera. It is impossible to read their descriptions without being struck with this resemblance, and admitting that the idea of Dr. Negri—" that the malignant cholera of our days belongs to the same class of diseases which was seen by Mercatus in Spain, Torti in Italy, and Morton in England"—is not entirely fanciful. But we have not to go so far back to find records of cases, exhibiting most, if not all the features of Spasmodic Cholera. Without making any extracts, we may allude to the description given by Frank at the beginning of the present century, of what he calls " intermitting Choleric Fever ;" also to the account of an Epidemic Cholera at Leeds in 1825, by Messrs. Thakrah and Dobson, in the Number of the

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* The Influence of Tropical Climates, &c., by James Johnson, M.D. and James Ranald Martin, Esq. 6th Edition, p. 306, 1841.

Medico-Chirurgical Review for April 1832. We may likewise refer to the work of Dr. Ayre, published in 1833, for some illustrations of a similar fact.

As a useful preliminary to the examination of details touching the question of Infection being the principal agent in the propagation of the Choleric Pestilence, we shall here take a rapid survey of the most prominent circumstances connected with the rise of the great Epidemic of 1817, and of its subsequent diffusion over the greater portion of the habitable world. Dr. Copland's account of its origin is as follows:

"Pestilential cholera first made its appearance in Jessore, a populous town in the centre of the Delta of the Ganges, and cut off the majority of those whom it attacked. It spread from the town in all directions, and reached Jaulnah, on the Madras side of the Indian peninsula, in June, 1818, and Bombay in August of the same year. It continued to spread and to prevail throughout all parts of India and the adjoining countries, and still prevails in many districts, although in various degrees of severity, &c., with intervals of complete immunity from its presence. Indeed, it may be said to have become naturalized in India, forming one of the diseases of the country."

He then tracks the subsequent course of the Pestilence in successive years; *eastward* to the Burmese empire, the kingdom of Siam, China, the Phillippine and other islands in the Indian Archipelago; and *westward* to Persia, Arabia, Syria, Judea and the Georgian frontiers of Russia. In 1823, it had reached Astracan on the banks of the Caspian; beyond which it did not extend for the present. For five or six years subsequently, we know little or nothing respecting its progress; the pestilence seems to have been lying dormant in the regions to the southward of this great inland sea. All that we can say, with any degree of certainty, is that, in 1829, it suddenly broke out with great violence at Orenburg, a Russian town on the Tartar frontier, about 400 miles north of the Caspian and about 1000 miles distant from the places where it had prevailed extensively in 1823. It is universally admitted that no satisfactory explanation ever has been given of the source or causes of the unexpected outbreak at Orenburg: this is a point which seems to be conceded by all who have enquired into the subject. The pestilence continued in that town until February 1830, after which time it seems to have entirely ceased for several months in the Russian territory. In July, however, of this year, it appeared a second time at Astracan with intense malignity, destroying in twenty-seven days upwards of 4000 persons in the town, and of 21,000 persons in the province. It then ascended rapidly the Volga, and reached Moscow in September. It continued to spread westward and northward through Russia and Poland; also to Moldavia and Austria. In May 1831,* it reached Riga and Dantzig; in June and July, Petersburg and Cronstadt; in August, Berlin; subsequently Hamburgh, and at length, in October, it appeared upon our own shores at Sunderland. London was not visited until the second week of February in 1832. The disease appeared at Calais a month subsequently, and, a fortnight later, Paris was visited by the pestilence. In June of this year, it made its appearance at

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* In this year also, it prevailed in Egypt epidemically at Cairo, where it proved very destructive; also at Smyrna and Constantinople.

Quebec and Montreal, and also in New York. In July, it spread to Philadelphia, and several other cities; thence to nearly the whole of North and South America. It was not until the latter part of 1833, that it reached Spain. It visited several parts bordering on the Mediterranean in 1834; and reappeared, in a very partial manner however, in London and some other places in this country, as well as on the Continent and in North America, in the same year. In 1837, it proved very destructive in Rome. "It spread," continues our author, "to various other countries not mentioned in this brief sketch between the years 1831 and 1837; and few places were entirely exempted from it, excepting those which were placed under strict quarantine." It is much to be regretted that Dr. C. has not particularized the places that enjoyed the immunity to which he here alludes.

So much for the geographical history of the world-wide diffusion of the great pestilence of the 19th century—a history which will not fail to suggest, to the mind of the attentive reader, various reflections on the much vexed question as to what agency this diffusion was chiefly attributable. But we shall not say more upon this point at present; for we must recall the reader's attention, for a few moments, to the locality or regions whence the pestilence issued. We have seen that Dr. Copland, without hesitation, asserts that "it first made its appearance in Jessore, a populous town in the centre of the Delta of the Ganges." The reader might naturally suppose, from this simple and unqualified announcement, that the truth of the statement had never been questioned, and that no doubt has ever existed as to the exact spot in which the pestilence was generated, and from which it emanated to devastate the earth. Now, what do we read on this subject in the Calcutta Medical Report, that was drawn up with such elaborate care, and after the most sifting examination of a vast amount of evidence?

"It is certain that nothing could be more erroneous than this notion of the local origin of the Epidemic. For, not to speak of its frequent occurrence so early as May in some parts of Nuddea and other districts already adverted to, it is quite clear from the statements of the medical staff, written separately and without interchange of knowledge or communication, that, more than a month previously to Jessore's becoming affected, the disease had begun to prevail epidemically in the distant provinces of Behar and Dacca; and that, before the expiration of the first week in August, it had firmly established itself in many other parts of Bengal."

After giving a variety of details, which it is not necessary here to record, the editor of the Report continues:—

"These facts are more than sufficient to show the fallacy of every theory, which attempts to derive the disease from any local source; or to trace it to any one particular spot, as the centre from which it was emitted to the surrounding countries. They prove, without the possibility of dispute, that it broke out in very remote places at one and the same time, or at the distance of such short intervals, as to establish the impossibility of the pestilential virus being, in this state of its progress, propagated by contagion (infection), or any of the other known modes of successive production; and that its general diffusion was therefore referable to some causes of more universal operation."

How can we resist such testimony as this, based too, as it is, on the most ample and satisfactory evidence obtained in the very region where

the epidemic took its rise ?   Is it not rather singular that our author should not have even alluded to it ?   One might almost fancy that he supposed that the admission of the disease having sprung up in various places about the same time was somehow opposed to his favourite tenet of its being a new distemper, essentially different from any endemic disorder of the country in which it arose.   But, however this may be, there cannot be a reasonable doubt, we should suppose, that the epidemic of 1817 did not commence in any one single and definite spot.   Mr. Orton, whom we shall afterwards find that Dr. C. is happy to quote as an infectionist, has distinctly asserted that it was in the district of Nuddea, and not of Jessore, that the disease commenced.   "It is, however, shown," says this most competent witness, "that this was far from being *its sole local cause........* Such and so striking being the circumstances attending the rise of the malady, and its first and principal ravages all over lower Bengal, we may fairly infer that *it was owing to this exaltation of the common causes of endemic or sporadic disease that it took on the epidemic and contagious form,* and thus became capable of diffusing itself far and wide over the earth." A very important admission from an author whom Dr. Copland quotes with deservedly high commendation.

Dr. Johnson also, writing in 1832, expressed his opinion respecting the origin of the Epidemic Cholera in the following terms:

"It is clear to demonstration that the disease did not originate in Jessore; on the contrary, there is as good, indeed better, reason to suppose that it was carried to Jessore, than that it *first* broke out there.   In truth, there is no proof that it sprung up in any one town, or even district; but, from some causes of which we are, and ever shall be, entirely ignorant, it was generated in the province of Bengal, in several places at the same time, and very probably under similar circumstances.   Let what will have been its origin, it did *not* commence at Jessore, nor do we know at what place it did commence, and consequently any argument or train of reasoning founded on such assumption is utterly baseless."*

It would also be leaving a very inaccurate impression on the reader's mind—one, too, at variance with the history of almost all other devastating pestilences—if we were to suppose that the great Indian Epidemic of 1817 broke out all at once, and without premonition, "like a thief in the night."   It was not so.   The preceding year (1816) had been unusually sickly.   An aggravated form of Remittent Fever prevailed epidemically in the upper provinces of India, and occasioned such mortality as "surpassed any thing on record in the medical annals of Bengal."   In many native villages the whole population was ill, and shops were shut for want of people to attend them; the banks of the rivers were at all times covered with the dying and the dead; in Cutch and in Scinde, several cities were said to be so depopulated that the living were unable to bury the dead. It would seem, also, that great mortality prevailed among the horned cattle.†

The Spring and Summer of 1817 presented singular deviations from their ordinary course.   The rains set in earlier than usual, and the season

* Medico-Chirurgical Review, No. 33, p. 78.
† *Vide* Medico-Chirurgical Review for July, 1832, p. 74.

was altogether unusually wet. During the first six months of this year, the endemic Cholera Morbus had shown itself sooner, and prevailed more extensively, than in former seasons.

The work of Mr. Orton, and also the Calcutta Report, give the fullest information as to the exceeding insalubrity of the year 1816 and beginning of 1817, throughout Bengal. The details will be found exceedingly interesting by every one who wishes to make himself thoroughly acquainted with the entire history of the great epidemic of this year.

It will be afterwards seen that the outbreak of the disease in other countries was very generally preceded by a greater amount than usual of sickness, more especially of diarrhœa and other bowel complaints, among the inhabitants.

We are now ready to examine the evidence adduced by our author in proof of his position that Infection has been the principal agent in the diffusion of the Pestilential Cholera. In commencing his investigation of the subject, he assures us that, from the very first, " his mind was entirely unbiassed, and desirous of adopting that view of it which well-ascertained facts should most fully support." We doubt it not; and all that we ask of him is to concede the same degree of candour and honest intention to those who may differ from him.

He first of all appeals to the evidence contained in the three official Reports from Bombay, Calcutta, and Madras—so justly characterized by him as the " original sources for information as to this and various other topics; because the opinions of the Indian reporters were generally derived from an extensive and varied experience of the disease during a number of years, and they were certainly not biassed in favour of contagion (infection)— that being a property which the diseases of India seldom present"—to which we have already so often referred. All these, he remarks, " favour the infectious nature of the disease more or less." He goes on very frankly to admit that " it is quite true that a majority of the surgeons and assistant-surgeons in India, who sent reports to their respective medical boards, state that they do not believe the disease infectious;" but then, says he, " a large number of them give a very different opinion, whilst the reasons, assigned by many for believing the disease to result from other causes than infection, are actually favourable to the existence of an infectious property;"—a remark, by the bye, not very complimentary to the sagacity of those gentlemen who witnessed the facts which they undertook to commemorate. But let that pass; and let us now look with ' unbiassed' minds at the more important statements in the three official reports to which so much importance is justly attributed by Dr. C.

That from Bombay was published in 1819, that from Calcutta in 1820, and the one from Madras in 1823. The members of the Medical Board in the first of these Presidencies, after candidly admitting that " they are aware of the doubtful nature of the ground on which they tread," adopted the following conclusion, which, we need scarcely say, is prominently brought forward by our author.

" It appears to them incontrovertible that this disease is capable of being transported from one place to another, as in cases of ordinary contagion or infection, and also to possess the power of propagating itself by the same means that acknowledged contagions do—subject, however, to particular laws, with which we

may never become acquainted—that is, by the acquisition of fresh material with which to assimilate."

The reporters, in another passage however, remark with great fairness and propriety, that the doctrine of the Infectiousness of the Cholera is " a question of the greatest importance and ought not to be hastily entertained as proved, nor rejected as unfounded; but prosecuted with that diligent enquiry and cautious induction which on every subject of science are so necessary to the attainment of truth : and we entertain a confident hope that the wide range through India which the disease has taken, will have afforded to some gentlemen more ample means of determining it than we possess." We shall see, as we proceed, the result of subsequent researches on this very point among the medical men of India.

After quoting the above general conclusion of the Bombay Board, Dr. C. next adduces the testimony of an unprofessional gentleman, which, as a matter of course, cannot carry much weight, and then that of several medical officers, whose evidence he considers to be highly favourable to the doctrine of the infectious nature of the epidemic.   The following is a part of this evidence :—

" Dr. Taylor reports, that ' whenever the disorder appeared in any particular spot or family, a considerable proportion of the family or neighbours were attacked within a very short period of each other; on many occasions I have seen three or four of a family, lying sick at once.' Dr. Burrell informs us that, in the short space of six days, every attendant, in his hospital, on the patients affected with cholera, had the disease.   And Mr. Craw states, that every one of the attendants, thirty in number, in the hospital of the 65th regiment, were attacked."*

Now, may it not be very reasonably conjectured that, in many of these instances at least, the disease was caught quite independently of direct infection from the sick, seeing that there prevailed at the time in the affected localities an epidemic disease, which is described by another of the reporters as " creeping from village to village, raging for a few days, and then beginning to decline." The very same sort of evidence might be adduced to prove the infectiousness of Influenza, if the mere circumstance of many members of a family lying ill at the same time be considered as any thing like satisfactory proof; and if we are to attribute the sickening of every one, without exception, of the attendants in the hospital of the 65th regiment to direct transmission of the disease, then indeed must Cholera be vastly more virulently infectious than the very worst forms of Smallpox or Scarlatina.   But that little importance is to be attached to the point so prominently urged by Dr. Copland is tolerably clear from the circumstance that Dr. Taylor—whose evidence has been adduced by him in favour of infection—expressly tells us that scarcely any of his hospital attendants were attacked.   Some of the other gentlemen bear testimony to the same effect.   Mr. White, for example,

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* Neither of those gentlemen, however, it is worthy of notice, expressed themselves convinced of the infectiousness of the cholera. The former merely stated that " he would be cautious in reporting the disease not infectious;" while the latter was unwilling, he said, to express any decided opinion upon the point in question.

tells us that, of the assistants and dooly-bearers in his hospital, who used to assist the sick into and out of the bath, and in every other way, not a single one suffered. This gentleman adds, that he had " seen the disease affecting a particular part in one cantonment for days without reaching another part, although a constant communication was kept up between these parts all the while."

In conclusion, it is but right that our readers should be made aware of the fact, that out of 22 gentlemen who sent in reports to the Bombay Board, 10 expressed themselves as decidedly non-infectionists, and 3 only as infectionists ; and of the latter, too, one was not a medical man.*

We now proceed to the Calcutta Report, which was published a year after that from Bombay, and was therefore based on a much larger experience. It was drawn up by Mr. Jameson, from the communications of a hundred medical officers in different parts of the Presidency. It is, perhaps, worthy of notice that this report differs from those of the Bombay and Madras Boards in the very important circumstance that, whereas in the latter two the individual communications, or large extracts from them, are given• in detail, these being merely preceded by a summary of the evidence, in the first we have only an elaborate summary of their contents, consolidated and fused into a systematic treatise. Dr. Johnson remarked that each plan had its advantages, and that he was well pleased that both had been adopted. Dr. Copland, however, seems to think differently, and is very indignant with the Editor of the Calcutta Report, charging him with most culpable ignorance of the commonest laws of infectious diseases, with extremely loose and illogical reasoning from the data furnished to him, and with a preconceived partiality in favour of a particular side of the question at issue. It is to be regretted that Dr. C. is so vehement in his denunciation of almost every thing that is opposed to his own views, as it inevitably leaves an impression on the reader's mind, that he is contend-

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* To show that even the most strenuous infectionists are not disposed to carry their views so far as Dr. Copland, we shall here quote a passage from a letter addressed by Sir Gilbert Blane to the Court of the East India Directors in 1825 :

" Nothing, I think, can be more clear, from the very luminous history of Epidemic Cholera given in the Bombay Report, than that this disease has arisen, on various occasions, without owing its existence to contagion (infection), and without communicating it to others, as exemplified in cases of a very limited number of individuals, unconnected and uninfluenced by each other ; in which circumstances, after a partial prevalence, the disease has disappeared without spreading, as stated in several passages of the Report ; while it is equally manifest, from other parts of the narrative, that the disease was certainly contagious ; nor is there in this any thing contradictory or dissonant to reason and experience in analogous cases. For it is fully ascertained, with regard to the Typhus of Europe and the Yellow Fever of the West Indies, that though they sometimes appear in a sporadic and uninfectious form, they do also, *under certain circumstances, assume a form decidedly contagious :* these circumstances are chiefly crowding, want of cleanliness, and deficient ventilation, which add concentration and virulence to the venomous principle."

Here it is obvious that the doctrine of " contingent," not of intrinsic and " essential," infection is distinctly advocated by one of the great champions of our author's general views.

ing rather for the triumph of his own opinions than for the discovery and establishment of the truth. Mr. Jameson, although decidedly opposed to the doctrine that the propagation of the Cholera was mainly attributable to infection, has, with a most exemplary candour, related a variety of circumstances, connected with the appearance of the pestilence in different parts of Bengal, that may be supposed to have an opposite bearing. For example, he says in one passage :

"If, setting aside the circumstances militating against it, we take it for granted that the infection was truly received by the centre and Hansi divisions of the army from the detachments above mentioned, we must believe that the disorder, although not communicable by *contact* from person to person, was so from one large body to another ;* and that, whenever the poison got a-head amongst a number of men, it assumed some new quality, so as, when mixed with the atmosphere, to become infectious. What constituted this additional quality, we cannot pretend to determine ; but, in support of its existence, we may quote the predilection of the epidemic for cities and camps ; the infection of the left division, and the Nagpore and Meerut troops, immediately after entering into the diseased medium at Jubbulpore, Nagpore, and Delhi, and the similar case of the troops and followers in attendance upon the Governor-general being attacked shortly after communicating with an infected village in the Gurrockpore district."

Dr. Copland seems to be quite astonished that any one acquainted with these and such like statements should hesitate, for one moment, in his opinion as to the infectiousness of the disease. He regards them as perfectly conclusive, and expresses indignant astonishment that Mr. Jameson, *when* in possession of such information, should have been allowed by the Government to proclaim his belief that infection was not the principal agent in the propagation of the pestilence. The dispassionate investigator of epidemic diseases, however, will not be so easily satisfied, nor be willing to commit himself to such a hasty and peremptory conclusion. Our author indeed alludes to still more convincing evidence in favour of his views, contained in certain documentary papers at the East India House in London, which he had the opportunity, he tells us, of inspecting in 1827 ; but, as he does not communicate any part of their contents, he cannot expect that much importance be attached to the statement.

Dr. Copland's treatment of the Calcutta Report throughout is so very partial and one-sided that it tends to shake, a good deal, our confidence in his fairness in the way of quotation from the authorities which he has consulted. Many of the most important facts and reasonings adduced by Mr.

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* It is pretty clear, from this and other passages in the Calcutta Report, that Mr. Jameson has used the word *contact* erroneously ; viz. to denote merely proximity to, and immediate intercourse with, the sick ; for, in what other sense could he have spoken of one large body of men being in contact with another ? Indeed, he has himself told us that this was his meaning : yet it is upon such a passage as the one here quoted, that Dr. Copland accuses him, that "in all his remarks, he seems to suppose that contact is requisite to the propagation of contagious disease." And is it not so ?—the reader may naturally enquire ; if the word *contagion* is to be used in that very sense laid down by our learned author himself, to denote "infection by immediate or mediate *contact*—as a pollution by the touch."

Jameson are passed over without even so much as the slightest notice. Thus, for example, he does not allude to the highly-important circumstances of the striking immunity on many occasions of particular bodies of men in the midst of the disorder, or having the disorder in the midst of them; of the disease having been often altogether absent in places and villages intermediate between two towns where it prevailed, although constant communication existed all the while;* nor of troops being quickly affected with the pestilence when they were brought into, or made to pass through, pestiferous districts, and of it as quickly subsiding when they were withdrawn from them.† He makes no allusion to that particular habitude which the disease so generally manifested of running a regular and definite course of outbreak, increase, maturity, decay and cessation within a very short space of time—say, from two to three or four weeks.‡ He does not tell us that

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* " Let the reader call to mind the innumerable detached spots which remained free, when all around was sickly, and remember that, in no single case, was any restraint placed on free intercourse between the healthy and diseased ; and he must come to the conclusion that the epidemic was totally independent of the common laws of contagion."

† The description given by Mr. Jameson of the terrible outbreak of the pestilence in the camp of the Marquis of Hastings on the banks of the Scinde is full of painful, but instructive interest. Nearly 9000 persons were carried off in the course of one week ; the disease rapidly subsiding and ceasing when the troops were withdrawn from the locality where the pestilence broke forth. The Governor-general thus spoke of this visitation of his army :—" The dreadful pestilence which made such havoc in the division under my immediate command, forced me to quit the banks of the Scinde, and to seek a more favourable country for the recovery of my numerous sick. I did not find this until I was fifty miles from the river which I quitted. Fortunately the change of air was rapidly beneficial."

The memorably destructive outbreaks of Epidemic Cholera, in the course of last summer, at Kurrachee is a similar instance of an almost instantaneous invasion of the pestilence. In the course of little more than a week, it carried off upwards of 8000 human beings ! Mr. Orton also has described a sudden and awful eruption of Cholera in a marching troop, succeeded by a terrific thunder-storm : p. 377 of his work.

These terrific outbreaks can be compared, in their effects, only to the breath blast of the Simoom in the desert. Infection can have nothing to do with the dreadful mortality of such visitations. How admirably has the poet described the destruction of the host of Sennacherib by the " pestilence that walketh by noon-day and the arrow that flieth by night !" There is as much philosophy as truth in the description :

> " Like the leaves of the forest when Summer is green,
> That host with their banners at sunset were seen :
> Like the leaves of the forest when Autumn hath blown,
> That host on the morrow lay withered and strown.
> For the Angel of Death spread his wings on the blast,
> And breathed in the face of the foe as he passed."

‡ This is a very characteristic feature of epidemics in general. Dr. Johnson very soundly remarked, in reference to this point : " It is certain that this law of Cholera is not absolutely conclusive against its infectiousness; but, inasmuch as it constitutes a most essential difference between Cholera and diseases manifestly infectious, it serves to destroy the analogy between them, and makes us hesitate in imagining that their propagation can be governed by the same laws."

the natives of India have never regarded the disease to be of an infectious nature ; although he availed himself of this very argument—that of the prevailing popular belief—in support of his opinion that the epidemic of 1817 was a new disease, altogether different from the endemic cholera of the country. He has also omitted to state that " the whole body of the medical officers in Bengal, who had an opportunity of seeing and remarking on the disease, without a dissenting voice, concur in declaring that it is not contagious (infectious)."* Now what, we may fairly ask, were the circumstances which produced such unanimity of opinion among those who, being on the spot, were surely better fitted to judge of the nature of the then-prevailing disease, than any gentleman, however learned, who was never in India in his life-time ? The Report has told us in these words :

" The opinion of the medical observer was, in all situations, founded upon his noticing the following facts :—In his attendance upon patients labouring under the disease, he did not find himself, or his assistants, more liable to be attacked by it, than such persons as had no communication with the infected.† He could not attribute his escape to the effect of precaution, for he took none ; nor to the limited nature of his intercourse with his patients, for the disorder, and the remedies employed in it, were such, that he was obliged to be constantly handling the body of the sufferer, and could not with safety leave his bed-side during the height of the attack. It might even be said, that in every case the patient and he breathed upon one another ; so that, had the effluvium, exhaled from the lungs or skin of the patient, been truly infectious, even in the slightest degree, he could have had no chance of escaping. Next he saw that, where one member of a family was ill, the others were not more liable to get the disease, than an equal number of individuals picked out from the general body of the community. This must be taken with some allowance. Sometimes two or more members of one family were seized ; but in such cases, they were generally all taken ill together ; were living in the same unwholesome situation ; and had been previously exposed to some manifestly strong exciting cause ; as the eating of noxious food ; sudden vicissitudes of temperature ; and the like. In the rare instances, in which one fell ill at some distance of time after another, if we do not choose to consider the occurrence as purely accidental, we shall be at no difficulty to explain it, upon remembering the depressing influence of fatigue, fear, sympathy and grief—all powerful predisposing causes.   *   *   *   *   *   *   In no one instance were the dooley-bearers, native compounders, or any other part of the large hospital establishments then necessarily kept up—although all were often so hard worked as to be scarcely able to stand from fatigue—more sickly than other descriptions of followers ; nor did the soldiers, who constantly flocked to the hospitals, to see and

* " To this unanimity of conviction there was originally one exception ; but, from more extended experience, that individual has since modified his opinion.— *Bengal Report.*

† This is a very striking fact. From a medical list, consisting of between two hundred and fifty and three hundred individuals, most of whom saw the disease largely, only three persons were attacked, and one death only occurred. The fatal case took place at Barrackpore, a station very little visited by the epidemic ; the two others, which were not severe, occurred in the centre division of the Army. There, too, one of the Surgeons of His Majesty's Corps was cut off ; the only medical officer belonging to the King's service known to have been affected. In Nagpore, the Medical Staff remained for several days, night and day in the hospitals, and yet all escaped."

watch over their sick comrades, appear, by that means, to be more susceptible than others, of the disease. Nor were those patients, who were ill of other disorders, although always surrounded by persons in every stage of Cholera, therefore more liable to be attacked."

Other arguments might be adduced from the above Report which strongly militate against Dr. Copland's peculiar opinions ; but our limits prevent us from doing more at present. The reader will now be able to judge for himself whether this Report can, anyhow, be said to " favour the infectious nature of the disease," as alleged by our author.

The present is perhaps as favourable an opportunity as we may have to allude to a topic in the history of Epidemic Cholera, on which there has been some difference of opinion—we mean, the liability, or not, to a second attack of the disease. Upon this point, Mr. Jameson says :

" Another curious circumstance in the economy of the disease was, that not only were persons, who had once undergone its attack, free from its further assaults ; but even individuals, and bodies of men, who having come within its pestilential influence, had escaped unaffected, were nevertheless much less obnoxious to its future visits, than those who had not before been exposed to the virus. In other words, a village, which was visited by the epidemic during the first year of its prevalence, would, on the disease re-appearing in that part of the country, be much less likely to suffer than another village, which had not before been affected ; and an individual, going from the former into the infected air of the latter, would have a better chance of immunity, than its inhabitants, who had not undergone the previous seasoning. This was the case to a greater or less degree in every part of the provinces ; in which it was generally remarked that the Epidemic, on its recurrence, either did not at all revisit the places formerly affected, or only in a much lighter manner, than those to which it was yet a stranger."

· Other writers, however, have expressly told us that one attack does not confer immunity from a subsequent seizure. Of this number are Mr. Scott, Mr. Hamilton Bell, and Dr. Budd. Messrs. Russell and Barry have said that relapses were very unfrequent ; and Mr. Orton has expressed a similar opinion.

We shall now notice very briefly the evidence of the Madras Report, which was not published till nearly four years after the one from Calcutta. We have already stated, in a previous page, that it is altogether opposed to our author's opinion of the epidemic of 1817 being an entirely *new* disease. Let us now see what bearing it has on the question of Infection being the principal agent in its dissemination. Any one reading Dr. Copland's notice of the general Report, might suppose that Mr. Scott, the Editor, as well as the most experienced and able of the medical officers who sent in communications to the Board, were decided infectionists. That the extracts, adduced by him from the individual reports of those gentlemen, strongly favour the opinion of the infectiousness of the disease, no one will deny. But why has he limited his attention entirely and exclusively to those statements only, which favour one side of the question ? Is this the way to arrive at truth, or to impress the reader with confidence in the impartiality of an author of a great work of professional reference ?

Mr. Scott has himself told us that, " if this question could have been decided simply by the opinions of a majority of medical men, it would have been already set at rest against the doctrine of contagion or infec-

tion ;" " for there are few subjects, perhaps, on which so little diversity of sentiment has existed." And he adds :—" It is not contended, by those who embrace the doctrine of Infection, that Cholera has not arisen spontaneously, as well at the present as in former times ; nor is it considered that this circumstance affects the question." Most true ; it does not affect the question whether the disease ever manifests an infectious character ; but it most vitally affects the question whether Dr. Copland's opinion, that infection is the principal agent in its dissemination, can be reconciled with the history of the epidemic. Without saying more upon this point, we shall only remind the reader that Dr. Johnson has given, in the last two editions of his work on Tropical Climates, a tabular analysis of the individual reports—amounting in all to 65—from which the general report has been constructed.

As respects the question of the infectiousness of the disease, we find the following summary at the end of this analytic table.

" 1 Suspects it to be contagious.	13 Decidedly not contagious.
1 Doubtful.	
1 Contingent contagion.	
1 Endemic and contagious.	
1 Slightly contagious.	
1 Inclined to think it contagious.	
1 Sometimes communicable.	
1 Decidedly contagious.	
2 Infectious.	
___	___
10	13

42 make no allusion to contagion. Of these 42, the great majority speak of the disease as an epidemic arising from some atmospheric or terrestrial cause ; and, as the queries of the Madras Board particularly directed the attention of medical officers to the subject of contagion, we may fairly conclude that, when no allusion to contagion is made, no proofs of it presented themselves to the observers. Mr. Scott, the Secretary of the Board, sums up the opinions of the contagionists and anti-contagionists, and gives no opinion himself on either side."

So much for the evidence on the important question of the infectiousness of Cholera, to be derived from the three Presidential Reports. We leave it to the reader himself to decide whether he will agree with Dr. Copland in the following propositions :—

"I have now shown, from the chief sources, that the disbelief of infection, in respect of the pestilential cholera, was not general in India—that the productions which issued from the three Medical Boards very strongly favoured, and indeed proved, the existence of this property,—that two out of the three actually insisted upon the activity of its influence,—and that, therefore, the dangerous opinion, so very generally propagated, and even acted upon, both in this and foreign countries, that the authorities of India did not consider the disease infectious, is entirely without foundation in truth."

Before taking leave of the important branch of testimony furnished by writers who witnessed the epidemic at the time of, and after, its outbreak in 1817, Dr. Copland briefly alludes to the published opinions of three gentlemen who have written upon the subject—viz. Mr. Orton, Mr.

Annesley, and Dr. H. Kennedy. The first he quotes as a decided (!) infec-
tionist;* the second, as one who ought to be, although he has declared
himself otherwise ; and the last as an infectionist, who " justly places
particular stress upon the peculiar odour exhaled from the bodies of the
affected, as indicating the generation of a principle calculated to propa-
gate the malady !"† He has not considered it necessary to allude to any
other of the numerous writers who have recorded what they saw of the
disease in India. This omission is surely much to be regretted ; it seems
scarcely fair either to those gentlemen who have benefited the public by
making known their experience on an important subject, or to the reader
who must certainly wish to be made acquainted with all the most valua-
ble testimony upon it. Let us very briefly notice the names, at least, of
some of the most competent witnesses.

We have already said that Mr. Annesley, a high authority certainly, is
a non-infectionist. " The limitation of the disease," says he, " to places
where there existed no natural obstacles to its extension, militates most
conclusively against any idea as to its being a contagious (infectious) dis-
ease, and seems to point to the existence of some difference in the quality
of the atmosphere." Dr. Whitelaw Ainslie, a very experienced medical
officer in the Company's Service, expressed a similar opinion. He has
distinctly stated that Epidemic Cholera does not differ, in essential patho-
logical characters, from the Sporadic disease ; but only in *grade*, depending

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* The work on Epidemic Cholera by this gentleman is certainly a very able
and instructive one. He is of opinion that some of the pestilences which devas-
tated Europe in the 14th and 15th centuries—especially the sweating sickness—
were almost identical with Cholera. While he advocates the infectiousness of
the disease, he candidly admits that "contagion (infection) alone is inadequate
to the production of an epidemic disease ;" and that "there is little, if any, in-
crease of danger from the most intimate communication with the sick during the
prevalence of the disease, above that which attends the common intercourse of
society :"—that, " in Bengal, not more than three medical officers out of the whole
list were known to have been attacked up to 1820, and but one died, although
nearly the whole of them had largely witnessed the disease ;"—that, "although
the importation of the disease has so often been found immediately to precede
its appearance in the inhabitants of a place, and even the first case to arise in the
neighbourhood of the imported virus, it has scarcely ever been possible to trace
these cases to personal communication in any thing like a regular series, as may
generally be done with the plague and other decidedly contagious disorders." Mr.
Orton, we may remark in conclusion, believes that "it is by means of *fomites* that
the disease is, in a great measure, propagated over a country."

† This gentleman, the 2nd edition (recently published) of whose "Notes on
the Epidemic Cholera " was noticed in the number of this Journal for January
last, has not, we may remark, adduced a single instance from his own observa-
tion of the infectiousness of Cholera. After quoting from the reports of others,
he closes his remarks with these words : "I know no character, belonging to
any contagious disease, which Cholera does not appear to me to possess ; and
if it be not contagious, I know no other disease which I should be inclined to con-
sider so !" Although an infectionist, Dr. Kennedy does not agree with our author
in regarding the Pestilential Cholera as a new disease : "there is nothing to sur-
prise us that this disease raged as an epidemic 40 years ago." This was written
in 1826.

on various causes, of the nature of which we are ignorant.* Dr. Smith has stated, as the result of his observations in India, that no instance ever came under his notice where the diseased person infected another; and the immunity of the attendants, as well as of the friends of the sick, who often crowd around the death-bed of their unfortunate comrades, sufficiently proves that the disease is not propagated either by contact or by atmospheric infection.† Dr. H. Young, who was in Calcutta when the pestilence broke out there in 1817, has expressed his strong conviction " of the non-contagious nature" of the disease.‡ Mr. Corbyn says: "from personal experience, I feel satisfied that the notion of the Cholera being contagious (infectious) is quite unfounded."|| Unquestionably, one of the ablest writers on Epidemic Cholera is Mr. G. Hamilton Bell. His work§ was universally acknowledged to be a most valuable production, based on very ample experience, and replete with an immense amount of information. He served in India from 1818 to 1827, and, from his position as residency surgeon at Tanjore, possessed unusual advantages for watching the disease under every aspect. Dr. Copland has perhaps done wisely not to grapple with either the facts or the reasonings so powerfully enforced in Mr. Bell's work. It is there emphatically asserted, that "Cholera Asphyxia is not a new disease to those natives (of India), but seems to be in many places almost endemical;" and that "it has been repeatedly ascertained that Cholera patients may be carried into hospitals crowded with patients labouring under other diseases, without these or the hospital attendants having the disease communicated to them." Mr. Searle also, who saw much of the pestilential Cholera both in India and in Europe, has spoken to nearly the same effect.¶ He attributes the disease to the operation of a malaria, aided by a peculiar condition or epidemic constitution of the atmosphere. But it is unnecessary to enlarge our list of authors who have published accounts of their experience of Cholera in the East. Suffice it to remind the reader that the late Dr. Johnson—than whom never was a medical writer better fitted to sift evidence and enucleate the truth—as well as Mr. Martin, whose authority on tropical diseases is deservedly so high, have uniformly rejected the doctrine so warmly espoused by Dr. Copland, that infection is the principal, or even an influential, agent in the diffusion of the disease.

Such then being the case, we cannot help saying how much surprised we were on reading the following passage—more remarkable certainly for rhetorical embellishment than for scientific argumentation—in our author's narrative.

"Are we to expect these comprehensive views of the history and modes of

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* *Observations on the Cholera Morbus of India,* 1825.

† *A few Practical Observations on the Spasmodic Cholera of India,* 1830.

‡ *Remarks on the Cholera Morbus,* 1831.

|| *Treatise on the Epidemic Cholera in India,* 1832.

§ *A Treatise on Cholera Asphyxia, or Epidemic Cholera, as it appeared in Asia and in Europe,* 1831.

¶ *Cholera, its Nature, Cause, and Treatment,* 1831.

propagation of a disease from those who have seen but a little, and described only what they have seen; or from those who dispassionately investigate the origin, the cause, the phenomena, and the relation of all that has been observed and recorded, and cautiously weigh the evidence on either side of a disputed topic connected with it? The captain of a company, or even a colonel performs an important part, individually, in an army during a general engagement; but he can know little, personally, of the disposition, changes, and evolutions of all its parts, and of the plan of strategy, according to which it first acted, or was led to change its operations, in order to meet or conteract those of its opponent. Like the commander-in-chief of the whole army, we, who collect, compile, arrange, and digest facts, on both the one side and the other of a disputed subject—who observe closely what has occurred within the sphere of our own experience—who compose, weigh and meditate upon the whole evidence, personal as well as testimonial, with our minds uninfluenced by prematurely conceived ideas, are the best suited to investigate and to conclude respecting them. Placed, by the number of accumulated facts, and by minds accustomed to view and to investigate the difficult operations of Nature, on the elevated table-land of human science, we may be admitted to be more able to take in a comprehensive view of the causes and nature of disease, and to come to accurate conclusions respecting it, than many of those who, as observation has shown, have drawn hasty inferences from a few and very imperfectly investigated occurrences."

Quitting now the testimony of East Indian authorities on the important subject which we have under consideration, we must invite the reader to accompany us in examining the evidence adduced by Dr. Copland and others respecting the transported infection of Cholera, after the pestilence had left the limits of Hindostan, and had entered upon that westward course of mysterious advance which it pursued until it reached the shores of America. Our author's notice of this part of his enquiry is intentionally very brief; " because," says he, " the identity of the malady in both hemispheres having been fully and generally admitted, and its infectious nature in India having been completely proved (!), it must necessarily possess the same character in Europe, unless counteracted by powerful means."

That the greater number of the instances enumerated by Dr. C. of the disease being *supposed*, or *believed*, or *considered*, or *said*, (for he very properly avoids making any strong assertion), to have been conveyed to different places by vessels from infected parts, and of the exemption of certain other places from its invasion, in consequence of quarantine and other precautions, are of the most questionable authenticity, must be apparent to every one. What will the reader think of such *proofs* as these?

" M. Hubenthal states that a peasant having arrived from Arkatal, on the borders of Persia, at the village of Neskatshne, to visit an uncle, was seized upon the night of his arrival with the disease. The persons engaged in restoring the heat of the body by friction, &c., four in number, were attacked on the following day, and three of them died. Precautions were taken by the police to arrest the progress of the pestilence in the village, and it spread no further!"

Here is another *proof*:

" Dr. Meunier states that, at Bagdad, where a third of the inhabitants was attacked, none were affected but those who approached the sick! Dr. Reimann says, that there was not a single instance of a town or village in Russia which contracted the malady without previous communication with houses or persons affected!"

It would be altogether unprofitable to endeavour to arrive at any thing like a satisfactory conclusion on the point at issue, by quoting the conflicting opinions of different writers as to the manner in which the pestilence was at first introduced into Astracan and other towns in that remote region. We should not, however, omit to allude to the evidence of Mr. Cormick, who was at Tabriz in October, 1822, at which time the disease had reached the western boundary of Persia, and was steadily advancing in the same direction. This gentleman utterly repudiated the notion of the disease spreading by infection.*

When the Cholera appeared at Astracan in 1823, the Russian Government resorted to restrictive measures to arrest its progress.† "Whether or not these measures (we quote from Dr. C.) were the cause of its disappearance may be difficult to determine; but it did disappear, and it was not till 1830 that it showed itself again in that city." Here, the reader will observe, there is a candid admission of doubt on the point mentioned; yet, strange to say, a few pages farther on, when combating the objections of the non-infectionists as to the utter inefficiency of any quarantine measures, our author does not hesitate boldly to affirm that "these succeeded for eight years in arresting its entrance into that place (Astracan")! This is an easy way of settling a disputed point to one's own fancy.

We have already stated that the outbreak of the pestilence—after having been scarcely heard of for several years—in Orenburg in 1829, has been candidly admitted by almost every writer to be utterly unaccounted for. In the Russian Official Reports, Dr. Lichtenstadt has distinctly acknowledged that it was not possible to trace the invasion to any communication with infected places. The majority of the medical men in Orenburg, at first, denied that the disease was transmissible from one person to another; but several of them afterwards qualified this opinion, and declared for its infectiousness, although still professing their utter inability to explain how the disease arose, or whence it came. Dr. Lichtenstadt has informed us that none of the medical men, and scarcely any of the attendants upon the sick were attacked. It is also well worthy of notice, that a malarious condition of the atmosphere prevailed at Orenburg during, if not before, the outbreak of the pestilence there; as will be seen from the following statement of Dr. Onufriev, physician of the circle or district: "During the prevalence of the Epidemic, there was scarcely a single inhabitant of the city who had not some symptoms of disordered digestion. One complained of oppression and pain in the breast; another of headache, slight sickness, looseness of the bowels, and the like." This, we need scarcely

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* *Medico-Chirurgical Transactions*, Vol. xii.

† Dr. Craigie of Edinburgh, who wrote so much and so ably on Cholera in the Edinburgh Medical and Surgical Journal, which, for many years, he conducted with distinguished ability, informs us that—

"Each of these cities (Astracan, Moscow, and St. Petersburg) was placed under a rigid system of seclusion and separation from infected places, by means of strong lines of military posts and barriers, which, in the case of Moscow, were two-fold. Notwithstanding these precautions, however, the disease appeared in every one of these cities, and without the possibility of tracing it in any instance to unequivocal importation.

repeat, is one of the surest evidences of the prevalence of an epidemic disease.

" The introduction of the pestilence into Astracan in 1830," says Dr. Copland, " was traced to a vessel which arrived from Baku, at that time affected with Cholera." But then the question at once suggests itself—whence came the disease to Baku ? But it is needless to argue where we have no data that can be depended upon ; and Dr. C. must excuse us for not attaching the slightest value to the evidence of the clergyman, which he quotes at great length, respecting the mode of its importation into a town of the name of Saratoff. He does not mention any thing about its introduction into Moscow. Sir W. Crichton, we may remark, has related with marvellous exactitude, the precise course, step by step, of the onward-advancing pestilence from the shores of the Caspian to this city, but candidly acknowledges that it could never be distinctly ascertained who conveyed it into its bosom.* " When the Cholera reached Moscow"—we quote from the official Report of Dr. Albers, who was sent by the Prussian government to Russia—" all the physicians there were persuaded of its contagieus (infectious) nature ; but the experience gained in the course of the epidemic, has produced an entirely opposite conviction.   *   *   *   *   During the epidemic it is certain that about 40,000 inhabitants quitted Moscow, of whom a large number never performed quarantine ; and, notwithstanding this fact, no case is on record of the Cholera having been transferred from Moscow to other places ; and it is equally certain that, in no situation appointed for quarantine, any case of the disease has occurred. In many houses, it happened that one individual attacked by Cholera was attended indiscriminately by all the relatives, and yet did the disease not spread to any of them. The nurses, also, as well as the physicians, escaped." Now this statement is made by a gentleman who professes himself an infectionist ; although he candidly admits that " the infection of the Cholera differs from the nature of all known infections, and seems to approach nearest to that of Typhus." We may observe that both Dr. Albers and Sir W. Crichton most emphatically stated, that not a single authentic instance could be shown of the disease being propagated by *fomites*, such as articles of dress or furniture, or indeed by any inanimate objects at all ; and the committee of Russian physicans, established at Moscow by order of the Czar, gave in an official report to the following effect : " The members of the Medical

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* In the communication of Dr. Walker from Moscow to the British Government, we find the following statement ——

" In Moscow, by far the greater part of the medical men are of opinion that the disease is not contagious (infectious), but produced by some peculiar state of the atmosphere, not cognisable by either our senses or by instruments ; that this was proved by almost every person in the city feeling during the time some inconvenience or other, which wanted only the exciting cause of catching cold, or of some irregularity of diet, to bring on Cholera ; that very few of those immediately about the patients were taken ill ; that persons had put on the clothes of patients who were very ill or had died of Cholera, had lain in their beds, or even alongside of corpses, had bathed in the same water where very bad Cholera patients had been bathed just before, and that none of these persons were taken ill."

Council have been convinced by their own experience, as also by the reports of the physicians of the hospitals, that, after being in frequent and even habitual communication with the sick, their own clothes have never communicated the disease to any one, even without employing means of purification."

While the Moscow physicians were, almost to a man, non-infectionists, most of their Petersburg brethren at first adopted the opposite side of the question. Dr. Copland simply informs us that " the introduction of the pestilence into St. Petersburg is referred, by Drs. Barry and Russell, to the arrival of vessels from places on the Volga, where it prevailed ;" and he goes on to state that, " in that capital, the infectious nature of the disease was shown not only by the mode in which it was propagated in various quarters, and by its introduction into and extension through the prisons and hospitals of the city, but also by its exclusion from some places by a rigid insulation." Among other convincing proofs, he mentions an instance where the pestilence was confined to one side of a village by the street being barricaded on the side where it had not reached, and all communication between the two sides of the village being interrupted ! This, is one of " the many facts of the same description now before me." It is somewhat strange that he has not alluded to the opinions of any of the permanently resident physicians of the Russian metropolis. The late Sir George Lefevre, physician to the British Embassy there, and who had very ample opportunities of seeing the Cholera, has stated, (in the pamphlet which he published at the time,) that he had no rational grounds for believing it to be contagious (infectious). During the prevalence of the epidemic, a general indisposition pervaded the whole population. After alluding to the idea of the infectionists, that the disease had been imported by a bargeman, Sir George very shrewdly asks : " How was it that none of this man's companions, exposed to the same causes, should have been attacked also ?"—and then he adds, " When, upon enquiry, it was found that, within the space of three days, the disease broke out in a dozen parts of the town widely-separated from each other, the supporters of contagion awaited further evidence, and the anti-contagionists increased with the increase of the disease."

Again, how does the following fact, related upon the high authority of the French medical embassy that was sent to Russia to investigate the nature, &c. of the pestilence, accord with the doctrine of its spreading by infection ?—Kristofsky island, which is situated in the centre of the populous islands of St. Petersburg, and communicates with them by two magnificent bridges, and with the town by a thousand barges, which bring every day shoals of people to enjoy the pleasant walks there, remained entirely exempt from the pestilence during the whole of the time that it prevailed in the town. Almost all the French players retired to Kristofsky, and not one of them suffered ; while, out of the small number of their companions who remained in the town, several died from the disease. The French reporters attribute the exemption of this island to the quantity of wood upon it, acting as a screen against the malarious air in the neighbourhood. Similar observations have been made in Italy on the subject of Intermittent Fevers; and Dr. Rush has remarked the same respecting Yellow Fever.

We must not forget to mention that the Russian government were speedily convinced of the utter inefficacy of any quarantine or other restrictive measures to check the diffusion of the Cholera, and that, ere long, it utterly abandoned all such vain attempts. Drs. Russell and Barry were, at first, of opinion that the disease was transportable by clothes and other material objects; but they became convinced of the fallacy of this notion. And here, before we further notice the advance of the pestilence into Europe, let us look for a moment at its invasion of Egypt.

In August 1831, the pestilence, which had raged at Mecca in the preceding June, broke out at Cairo with dreadful violence. The terror and desolation that ensued were truly alarming. Clot-Bey, who gave a very interesting account of the invasion in the *Annales de Medecine Physiologique*, has declared his conviction that the dissemination of the disease was not transmitted by infection from one person to another, but only conveyed through the medium of the atmosphere. The reasons he gave for this opinion were—1, the nearly simultaneous outbreak of the pestilence in distant parts ; 2, the non-immunity of the harems ; 3, the non-immunity of the ships in the harbour at Alexandria, notwithstanding the suspension of all intercourse with the shore ; 4, the immunity of some villages and districts in free communication with infected places; 5, the paucity of attacks among the servants at the hospitals; 6, the frightful rapidity with which the pestilence reached its acme of destructiveness (it acquired its maximum of intensity in four or five days, and, after lasting for nearly a month, quickly subsided altogether) ; and 7, the almost universal prevalence of the disease in some one of its forms among the inhabitants. Clot-Bey candidly admits that Cholera, like other epidemic diseases, may, under certain circumstances, acquire an infectious character.

Dr. Copland does not make any mention of the disease at Dantzic. We shall supply the omission by quoting from the Official Report of that experienced physician, Dr. Hamett, who was sent there by our own Government to make observations. The opening statement of his Report stands thus :

"It remains a problem to this day, in what manner the Cholera Morbus originated in and about Dantzic; certainly it is not proved to have been brought hither from Russia or Poland by men or merchandise; because no ship had arrived at Dantzic from any Russian port previous to its appearance, and the intercourse with Poland had ceased since the beginning of Winter. The first symptoms of cholera showed themselves indeed in such a peculiar manner as almost to exclude even the suspicion of its importation; and it is reasonable to conclude, that the disease originated here in some manner that has, as yet, not been explained. This is corroborated by the statements of several physicians, viz. that cases similar to cholera had been observed previous to the arrival of any vessel from Russia; and that the weather had been so remarkably unsettled since the commencement of Spring, that malignant diseases might be reasonably anticipated."

But, not satisfied with recording his own observations, Dr. Hamett applied to several of the leading physicians of Dantzic for their opinions. These are given in full in his valuable report, and well deserve perusal. They unanimously repudiate the doctrine of infection.*

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* The Substance of the Official Medical Reports upon the Epidemic called Cholera, which prevailed among the poor at Dantzic between the end of May and the beginning of September 1831. By John Hamett, M.D. p. 190. Highley, 1832.

From Dantzic we pass on to Berlin. Dr. Copland merely quotes the opinion of a young physician there, Dr. Becker, that "the disease was introduced into that city by the vessels navigating the river Spree, which runs through the city;" but his evidence is far from being satisfactory. Nothing is said of Vienna or Hamburg, nor of the opinions of the medical men in those cities as to how the disease came to them. Dr. Vivenot, one of the most experienced physicians of the Austrian metropolis, published an elaborate document at the time, to show that the disease was certainly not propagated by infection; and, with regard to the appearance of the pestilence in one portion of the Emperor's dominions, Dr. Craigie has informed us :

" The example of the kingdom of Hungary is perhaps still more forcible. Never, perhaps, was such a rigid and perfect system of non-intercourse enforced as that which was instituted on the southern, northern, and eastern boundaries of Hungary, when the disease appeared in Poland. Every defile of the Carpathian mountains was guarded with strong military posts, and watched with the utmost vigilance. Neither human beings, goods, nor brute-beasts, except, perhaps, an occasional wolf or bear, could penetrate into the Hungarian territories, unless at the muzzle of the firelock or the point of the lance. Yet how vain these precautions proved was evinced in the course of a few weeks. For the disease appeared on the Hungarian side of the Carpathian chain, in the month of June, and spread most rapidly through the towns situate on the banks of the rivers of that well-watered country. It will not do in this case to say that the sanitary lines were broken, in the ordinary sense. Broken they no doubt were; but by no human power."

The introduction of the pestilence into our own country is declared by Dr. Copland to have been " certainly owing to the clothes and bedding of sailors, who died of it at Riga, or other northern continental ports, or during the voyage from those ports, having been too generally preserved and delivered up to their friends, upon the return of infected vessels to British ports." The authority on which he hazards this bold assertion, is the information which he received from "two masters of vessels," who furnished him with "several proofs of a most incontrovertible nature."
*   *   *   *   " These masters," we are informed,
"were, conformably with the then prevailing opinion, persuaded that the distemper could not be propagated by the clothes of those who had died of it; but facts soon afterwards occurred, which demonstrated to them the propagation of the malady in this manner, as well as by direct communication with the affected." Such is the evidence on which our author rests his own opinion ! He makes no reference whatsoever to the published testimony of Drs. Brown and Ogden, Mr. Greenhow, and various other medical gentlemen, resident in Sunderland and its immediate vicinity, who have most emphatically assured us that not a jot or tittle of any thing like satisfactory evidence could be discovered as to how and when the pestilence was introduced to our shores. Dr. Brown, who has written ably on the subject, expressly declares that he had met with several cases which exhibited all the features of malignant Cholera one and two months before the arrival of any suspected vessel into the port of Sunderland. But it is scarcely necessary to enlarge upon this topic. In our simplicity we had fancied that there was not now a single medical man in this country who persisted in the doctrine of the importation of the pestilence among

us by the foul clothes of sailors who had died of it.   Dr. Copland does not take upon himself to say positively from what particular place the disease came to us; but he demonstrates the facility with which its infectious principle might be transported from place to place, by relating an occurrence which befel himself.   It was this.   After having spent some time in the first cholera hospital that was opened in Bermondsey, Dr. C. drove to Pentonville in an open carriage, and there visited two of his relatives.   On his entrance into their apartment, they at once complained of an offensive odour proceeding from his clothes.   He said nothing as to where he had been.   Next day they were both seized with the early symptoms of the distemper, from which they ultimately recovered with difficulty.   " Precautions were taken against the further extension of the malady in this house, and no case occurred in the vicinity until some months afterwards !"   It was fortunate that our author's own household escaped, seeing that his cloths must surely have retained some portion at least of the pestiferous effluvia with which they were so highly charged. We presume that the preceding *proof* of the transmission of Cholera is the same with that which is recorded in a note in an earlier portion of the Dictionary, where the following still more remarkable instance of the infectiousness of the disease is recorded :

" During the prevalence of Cholera in London, in 1832, a parrot, in the apartment of a person who had the disease, died with the symptoms of it.   Due precautions having been used to prevent its extension to the rest of the family, no one else was affected by it.   Some other birds, in different parts of the house, escaped."

We shall not detain our readers with noticing the observations of any private individuals with regard to the infectiousness or not of the Cholera, as it showed itself in any part of our own country ; but it may be worth while very briefly to allude to the opinions and acts of those whose official position necessitated a public avowal.

In the course of the month of June, 1831, while the disease had not yet extended further east than Dantzic and Cracow, Sir William Pym, our Superintendent of Quarantine, addressed a letter to the British Government, recommending, among other immediate measures against the introduction of the Cholera, " that an order be issued prohibiting altogether the importation of every description of woollen rags," and suggesting at the same time that the College of Physicians should be called upon for their opinion " whether other goods deemed susceptible (such as hemp, and flax, wool, &c.) could be imported with safety, without quarantine purifications from parts where Cholera prevails."

The College declared in their report, which was signed by the late Sir H. Halford, and by Drs. Turner, Macmichael and Hawkins, that " the disease is of an infectious nature, and therefore does require that all persons coming from an infected quarter should be placed under a quarantine of at least fourteen days;" but, as there was no proof that the disease has been propagated by means of inanimate objects, " we cannot bring," it is added, " ourselves to believe it necessary to adopt the fifth article (just quoted) of Sir William Pym's recommendations."

Within a week from the date of this letter, the President and Fellows addressed the Lords of the Privy Council, re-stating their belief that

" Cholera is communicable from one person to another," and now re-commending, until further information could be procured, " that articles of merchandise admitted into this country from infected places should be submitted to the usual regulations of quarantine" !

The Government, doubtless not satisfied with the mere advice here given, required from the College a more detailed statement of their reasons on which this advice was founded.   Accordingly, a long letter was drawn up, embodying chiefly the account given by Sir William Crichton (who, be it remembered, expressly denied the transmission of the disease by inani-mate objects), to which allusion has been made in a previous page.

The recommendations, we may remark, that were issued by the first Board of Health, in October 1831, were so extravagantly stringent—to the effect, for example of " immediate separation of the sick from the healthy"—" conspicuous marks on infected houses"—" rags, papers, old clothes, &c. to be burnt"—" all articles of food to be placed in front of infected houses, and received by one of the family, after the person de-livering them shall have retired," with many other precautions of a like character—that within a fortnight from their promulgation they were cancelled, and a new Board, consisting of men who had witnessed the dis-ease, was instituted.   Thereupon, the public was informed upon author-ity that " Cholera is not more infectious than Fever,"—that " this disease seldom spreads in families, and rarely passes to those about the sick, un-der proper observances of cleanliness and ventilation," &c. &c. !

We shall not say more upon the operations of the second or Central Board of Health than merely to recall to our reader's memory that one of their last acts was to issue *a recommendation* to the hospitals of the metro-polis—and consequently to all public institutions of the kind elsewhere—*to receive Cholera patients, in future, as they would patients labouring under any other disease*.   Need a single word of comment be made upon this truly valuable advice ?—an advice which we trust may be always acted upon on any future visitation, either of the Cholera or of any other form of pestilence.

From London, let us pass over to Dublin, and thence to the French metropolis, and see what the leading men in these distinguished seats of professional literature thought upon the subject in hand.

The Board of Health for Ireland, in one of the first documents which they issued (March 1832), candidly admitted that " they were not able to trace the disease to any communication, by which it might have been in-troduced into the neighbourhood of Dublin ;"* and, soon after the break-ing out of the pestilence in Paris, the following most important manifesto was published there :

" The undersigned physicians and surgeons of the Hôtel Dieu think it their duty to declare, in the interest of truth, that, although this hospital has received

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* Dr. Bullen of Cork, in his pamphlet on the Cholera in that city—which, by the bye, was not affected for several weeks after the appearance of the disease in Dublin, although constant and uninterrupted communication existed between them—has told us that, " upon every enquiry, there are no grounds for supposing that cholera was imported into Cork."

the greatest number of persons affected with the cholera, they have not observed any circumstance which authorises them to suspect that the disorder is contagious.   (Signed) Petit, Husson, Magendie, Honon, Sanson, Gendrin, Recamier, Dupuytren, Breschet, Gueneau de Mussy, Caillard, Bailly.—*Paris, March* 31, 1832."

Most of the other hospitals in the French metropolis followed the example of the Hôtel Dieu.

The Report, also, of the Academy of Medicine in France expressed a decided opinion against the infectiousness of Cholera.   Allusion is made in this report to the majority of the residents in Paris experiencing, in a greater or less degree, the influence of the epidemic constitution.

Leaving now the shores of Europe, we must turn our attention, for a few moments, to those of the New World, where the pestilence made its appearance in the Summer of 1832.   It has always seemed to us that by far the strongest argument for the views of the importationists is the circumstance of the disease having manifested itself in parts of the globe, separated from each other by thousands of miles of sea between, and this too, as it has been very confidently asserted by these gentlemen, soon after the arrival of vessels from an infected port.   It is therefore necessary to examine, with all possible fairness and impartiality, the proofs of the assertion in question.   The two most remarkable instances of the alleged introduction of the pestilential cholera into regions, very far apart from each other by intermediate sea, are those of the Mauritius in 1819, and of Canada in 1832.   The former is perhaps the more remarkable of the two ; and, being also the earliest in point of date, as well as the least generally known, we shall first look at its history.

Dr. Copland—following the statements of Moreau de Jonnes and some other writers, chiefly French, on the subject—has ascribed the introduction of the cholera into the Mauritius to infection derived from the Topaze frigate, which had arrived from Trincomalee, where the disease, it is asserted, prevailed at the time of her departure.

Let us see on what grounds this opinion—which has been repeated by one author from another, without any circumstantial evidence having ever been adduced—rests.   With the view of ascertaining the authentic particulars of the case, we have examined the original official reports sent home by our military medical officers then resident upon the island, and which are now preserved at the Army Medical Office here.*   We beg most distinctly to assure our readers that the following statements are entirely derived from these documents, that we have added nothing and have withheld nothing ; all that we profess to do being to give a brief abstract of their contents. The most perfect reliance may therefore be placed on what we set down.

A committee of English and French medical men was appointed by the Governor of the Mauritius, General Darling, to enquire into all the circumstances connected with the appearance of the cholera on that island.   It is from the report of their deliberations, signed by Dr. Burke, the then chief medical officer there, that the following memoranda are derived.

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* Our best thanks are due to Dr. Smith for the ready permission which he granted us of inspecting these reports.

.. In the course of the month of September, 1819, a few cases, exhibiting all the characters of malignant Cholera, occurred in the private practice of one or two of these. gentlemen : some of these cases proved rapidly fatal. The Topaze frigate from Trincomalee arrived on the 29th of October ; and, on the following day, 30 of her crew, suffering either from Dysentery or Hepatitis, were landed and received into the hospital of the 56th Regiment ; there was no case of Cholera on board at the time, nor afterwards, while the frigate lay there.*

Numbers of negresses and other women were admitted on board, and there was free communication kept up with the shore. No case however of the disease occurred for upwards of four weeks after the arrival of the vessel ; and then it occurred not in the hospital of the 56th regiment, but in the barracks at Port Louis. The first case in this regiment did not take place for two or three days later. After this time, the disease made its appearance in various places, and at length committed great and wide-spread ravages. It may be worthy of notice that, while the crews of many of the merchantmen suffered severely, not a single case occurred on board the Topaze. It is particularly remarked by Dr. Burke, that " none of the hospital attendants up to this date (19th Dec.) have been attacked." A similar statement is made by Dr. Kinnis, surgeon of the 56th regiment. During the prevalence of the epidemic, there was a sudden and unusually severe outbreak of the disease at a place called the Powder Mills ; but, by withdrawing the soldiers from the locality, it soon subsided. Their com-

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* As it is of primary importance to determine the sanitary condition of this vessel, before and after her arrival at the Mauritius, the following details, derived from the report of her surgeon, Mr. Foy, will doubtless be read with much interest. The Topaze left Trincomalee with a number of her crew suffering from dysentery, diarrhœa, and fever. During the voyage, 17 of the dysenteric patients —63 in number—were seized with Cholera ; and, of these 17, three died. Mr. Foy remarks :—" what has contributed to retard the recovery of the sick is a Scorbutic Diathesis, which has been for some time very general amongst the crew ; to this I attributed the many cases of obstinate diarrhœa on board." He then proceeds to state that the whole mortality on board the Topaze, during the 18 months that she had been in commission, amounted to not more than 16 deaths. Of these, six were from Dysentery, five from Cholera, three from Hepatitis, one from Pneumonia, and one from Phrenitis. Mr. Foy never for a moment entertained the idea of the Cholera having been imported into the Mauritius by the frigate. Five days after his arrival there, he wrote to Dr. Burke officially, that no " contagious (infectious) disease exists on board, that none existed during the voyage, nor, to the best of my knowledge and belief, did any exist at the places we sailed from."

How do these statements agree with the assertions of M. Moreau de Jonnes in his semi-official communication to the French Government, two or three years later ? He takes it for granted, that the disease was introduced into the Mau-ritius " par les communications maritimes ; and straightway he goes on to inform us that, " in the month of November, an English frigate arrived at Port St. Louis from Calcutta, having lost a number of her crew from a disease which raged on board !"

The circumstance of a disease like Cholera breaking out on board of a vessel at sea, and which had been quite free from it at the date of her departure from the last port, is a very interesting one. Might not the advocates of the Animalcular Theory of dissemination reasonably press it into their service ?

manding officer stated to Dr. Burke that, " in many of the cases, the men had been griped and purged for several days before being attacked with Cholera." The pestilence continued to prevail at Port Louis and in different parts of the island until March in the following year, when it entirely ceased. The mortality amounted to about 8000,* of which above 1300 cases occurred in Port Louis alone.

Now, with respect to the question of the disease having been imported into the Mauritius and spreading by infection there, the following data will probably satisfy most of our readers. The closing sentence of the report alluded to above, and which is signed by the names of 14 French and 4 English medical men, stands thus :—" La Commission de Santé n'a aucun motif de croire la maladie regnante contagieuse, et cette opinion est unanime parmi tous les membres ;" and Dr. Burke, in transmitting the report to the Governor, uses these words :—" Both classes of the profession seem to be unanimous in not supposing the disease to be contagious (infectious) or of foreign introduction." Among the precautionary means recommended by the Commission, no allusion is made to quarantine or other restrictive measures.

We have omitted to notice that Dr. Burke distinctly states that the weather at the Mauritius had been very unhealthy for many months before the appearance of the Cholera ; so much so, that the natives had anticipated a sickly season. Some of the cases seem to have been of the most malignant character ; for Dr. B. mentions that " he had been called to see some patients who, by their own report and that of their friends, would seem to have been struck as if by lightning." Dr. Kinnis alludes to the almost entire immunity of children from the disease, and to the very small proportion of women who were seized.

In conclusion, it may be worthy to state that, from enquiries which Dr. Burke made at the time, it appears that a disease, very similar to the then existing epidemic, had been known at the Mauritius so far back as 1775—at which period we know that a malignant epidemic cholera existed in India. This circumstance, although certainly not sufficiently authenticated, deserves at least to be mentioned.

What, then, is the evidence respecting the Cholera having been imported into the Mauritius by the Topaze frigate ? That a ship, with a crew of nearly 400 men, left her last port without a single case of Cholera on board, but with upwards of 100 on the sick-list from dysentery, hepatitis, and other tropical diseases ; that three fatal cases of Cholera occurred during the voyage ; that no other case took place before her arrival at the Mauritius at the end of October, or during her stay there ; that a few cases of the disease had been witnessed on the island in the month of September ; that no fresh cases occurred for three or four weeks after the arrival of the frigate, in spite of there having been a free and unrestricted communication between the ship and the shore ; and then, that the disease made its appearance not in the hospital to which her sick had been conveyed, but in another part of the town. Need a single word be added, in

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* Dr. Copland says 20,000. This exaggerated statement was first made, we believe, in the Quarterly Review.

the way of comment or remark, upon this simple enumeration of *facts*, the entire accuracy of which is authenticated, beyond all reach of doubt, by the written evidence of the medical men, civil and military, resident upon the island at the time?

With respect to the introduction of the disease into the neighbouring island of Bourbon, Dr. Kinnis states, in his report (the date of which is March, 1820), that, " after running its course here, it appeared at Bourbon in defiance of the most vigorous quarantine ;" and Dr. Collier, who succeeded Dr. Burke as chief medical officer at the Mauritius, and acted as the head of the quarantine establishment there, mentions in his report, dated some years subsequently, that " Governor Mylius did not succeed by quarantine in shutting out the disease from the island of Bourbon, but that it appeared there in February (1820), and spread there in spite of lazarettos and other precautionary measures."*

So much for the oft-cited case of the Mauritius. We shall now see whether the evidence of those medical men in Canada, who had the best opportunities of becoming acquainted with all the circumstances connected with the appearance of the Cholera there, is more favourable to the importation doctrine so energetically insisted upon by Dr. Copland. The following data are taken almost entirely from a very long and carefully drawn-up report upon the subject by Dr. Stewart, Deputy-Inspector of Hospitals, then chief medical officer in Canada.

The first case of Cholera in Montreal occurred on the 9th of June, and in the person of an Irish emigrant who had arrived that day from Quebec, in the Voyageur steam-boat.† This person had landed at Quebec in perfect health, from a vessel in which one or two of the passengers only had been sick during the voyage from Cork ; nor was there any Cholera on board at the time of her arrival. On the following day (10th), another emigrant was seized, and " the disease appeared at the same time in distant and opposite parts of the town." It soon burst out everywhere. The first case among the soldiers in the garrison of Montreal occurred on the 12th (June) ; and, from this date to the 18th, there were 75 admissions into the hospital. In the course of the 19th, the regiment in which it appeared was moved from their barracks, &c., which were deemed un-

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* We have had the pleasure of conversing with Dr. Collier—who, after a very lengthened period of active service abroad in the East and West Indies, is now resident in London—upon the subject, and we had the satisfaction of finding that his views are altogether in accordance with those which we have advocated in the present article. He is entirely opposed to the doctrine of importation by infection, and feels assured that the extension of a disease like Cholera is quite independent of personal communication. It is, perhaps, scarcely necessary to add that Dr. Collier—as indeed every other medical man who has been in the East—recognises no essential difference between the endemic Spasmodic Cholera of India, and the " Choleric Pestilence" of Dr. Copland.

† This steamer had left Quebec, on the preceding day, with such a multitude of passengers that she was obliged to put back and land a number of them there, before she could proceed on her voyage with the rest. It would seem that Cholera broke out that very night among some of those who had been landed, and who had taken up their abodes in one of the lowest and filthiest parts of the town.

wholesome, and encamped at St. Helen's. From this time the disease may be said to have ceased in it almost entirely.* A great number of the men, however, were afterwards affected with diarrhœa and other premonitory symptoms; but, by these being promptly checked, there was no further extension of the pestilence amongst the troops. None of the officers or of the medical men, and scarcely any of the hospital attendants suffered. Few women, comparatively, were attacked ; and children were almost entirely exempt. Nearly the whole population of Montreal experienced the influence of the epidemic.

In Canada, as in other countries, the season preceding the appearance of the Cholera had been marked by unusual sickness. Typhus and Scarlatina, of a bad type, had been very prevalent. There was also much blight, and a greater mortality than usual among many of the domestic animals. A report got abroad in the Spring that some cases of malignant Cholera had occurred at Chippewa; but it turned out that the disease, which had proved so rapidly fatal there, was a concentrated form of Remittent Fever. It appears, however, from the testimony of Dr. Robertson—one of the most experienced physicians in Montreal—that he had seen, in the month of April, several cases in which (to use his own words) "the symptoms were exactly the same as those subsequently witnessed during the prevalence of the malady ;" and another of the resident physicians confirmed the accuracy of this statement.

Dr. Stewart very reasonably concludes, from the circumstances now briefly alluded to, "and from the rapidity with which the disease showed itself at Quebec, Montreal, and other places in the country, distant from each other, at about the same time that the diffusion could not be well ascribed to the operation of personal communication." He speaks also of "the want of proof of any person having landed from any vessel on board of which Cholera had existed on the passage, before the appearance of the disease in the country," as a circumstance that was quite opposed to the doctrine of importation. The only vessel up to that time, on board of which the disease was reported to have existed, was at the moment moored off the quarantine station, situated several miles below Quebec. It is a circumstance, too, that deserves to be noticed, that a vast number of emigrants(it is said upwards of 30,000) had arrived in Canada from Europe before the Cholera broke out.

Now, with respect to the sentiments of the resident medical men as to the mode of the diffusion of the Cholera, Dr. Stewart says : " In Canada, and I believe I may say in North America generally, the majority is in favour of non-contagion ;" and again, " the doctrine of non-contagion is most generally supported." His own opinion is, that it may acquire an infectious property under circumstances unfavourable to health : in other words, he is a contingent infectionist.† He expressly tells us that nothing

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* The entire number of cases of Cholera in the troops forming the garrison of Montreal from the 12th of June to the 30th September, was 107 ; of these, 39 proved fatal. Eleven only of the 107 cases occurred after the 1st of July.

† He mentions several instances of particular houses or dwellings appearing to retain so strongly the pestilential miasms, that persons taking up their abodes in them became speedily affected with the disease.

had been witnessed in Canada, to warrant the suspicion of the disease being transmissible by *fomites*. One of the closing remarks of his exceedingly elaborate and very valuable report is, that " this pestilence would seem to bid defiance to all attempts to arrest its progress."

The Government of the United States, we should remark, had attempted, in the first instance, to prevent the introduction of the Cholera into their territory by quarantine establishments along their side of the St. Lawrence ; but it was soon convinced of their utter inefficacy, and at once abandoned them. The first case or cases that occurred in New York could not be traced to any distinct source or cause of contamination. So the Cholera Gazette of Philadelphia informed us at the time. This official document alludes to the introduction of the pestilence into the New World in these terms:

" From the numbers of emigrants who about this time (June, 1832) had landed at Quebec and arrived at Montreal from England and Ireland, a first impression was created that they had been the means of transmitting the epidemic across the Atlantic. A more close investigation into the facts connected with the commencement of the disease in those cities, served to destroy this supposition. It could not be traced to importation. The emigrants and lower classes of Canadians were attacked simultaneously in both cities."

It is unnecessary to do more than merely allude to the curious circumstance in the history of the Pestilential Cholera, that it did not visit Spain till the close of the year 1833, and beginning of the year 1834—in which year it also re-appeared in this country and in North America—nor Rome till 1837. How, pray, can we account for these seemingly most capricious outbreaks of the disease upon the theory of importation ? Had the communications between France and Spain been so admirably guarded for upwards of a year and a half, that the distemper, which was raging in Paris in the Spring of 1832, was thereby kept from Madrid till the early part of 1834 ?—or how came it to pass that it took several years more to make its way into Italy ? Was it shut out by the quarantines on the coast and military cordons on the land ? But, without dwelling upon these vagaries in the history of Cholera, let us for a moment call the reader's attention to the curious circumstance of the singularly isolated development or appearance of the disease on board the Dreadnought, Hospital Ship, in October, 1837, of which so interesting an account has been given, by Dr. Budd and Mr. Busk, in the Medico-Chirurgical Transactions. Surely no one can, with " unbiassed mind," read their narrative without repudiating for ever the opinion of infection being the chief agent in the introduction and propagation of the malady. Yet, Dr. Copland clings to his favourite doctrine with the most devoted tenacity ; but only by shutting his eyes against facts which cannot be gainsaid, and his good sense against his reasonings which it must be most hard even for him to resist. That he is perfectly sincere in his own opinions, we doubt not for a moment ; else he would never have committed himself to such confident and authoritative statements as those with which the whole article abounds. For example, in closing his remarks upon the interesting subject which has chiefly occupied our attention, he lays down the following position as one which he has satisfactorily made out :

" This disease is never produced without the presence of a certain leaven or mor-
bific matter, which, emanating from the bodies of the affected, and floating in the
air, is respired by those about to be attacked. This is the clear and only inference,
connected with its transmission, that can be deduced from the body of evidence now
placed before the reader. Those who argue against its transmissible nature, can-
not show, since the irruption of the pestilence in India down to its arrival in this
country and transmission thence to America, a single instance of its appearance in
any place without the previous communication with an infected place or persons,
of a nature to propagate the malady."

In another passage, he does not hesitate to assert that the disease " has
entirely avoided those who placed themselves altogether apart from the
rest of the community ;" and that it has been " barricaded in some towns
and shut out from certain districts and streets."

Now, first of all, we would remark that the opening position here laid
down must strike every one as very strange :—Cholera never produced
without the presence of a poison proceeding from the bodies of the sick!
How, pray, was it first generated ? If, as Dr. C. supposes, it was a new
disease in 1817,—produced, be it remembered, no one knows how—what
is there to prevent its arising in like manner during other seasons, and in
other places similarly situated ? Whether the remark of Dr. Copland, that
" there is no evidence to account for the generation of the cholera poison
in the first instance, and there is as little of its reproduction *de novo* on
subsequent occasions," is meant by him as an answer to this objection, we
do not quite understand. However this may be, it is pretty obvious that
Dr. C. is not inclined to push his views upon this point too far ; for, in the
very next page, we find him saying that " whether this principle (of infec-
tion) originated with the first irruption of the malady, or has been repro-
duced on numerous occasions subsequently—the disease which reproduces
it proceeding from a very different cause—is a difficulty which will not
be easily solved.", With respect to the second position, the weight of
the proof, it will be observed, is adroitly turned over by Dr. C. to the ad-
versary, instead of his even attempting to show how the pestilence reach-
ed a vast number of places which he has enumerated. But we have not
far to go in search of evidence against his view of the question. Two
pages further on from the passage just cited, we read :

" The non-infectionists argue that numerous instances of Pestilential
Cholera have occurred, which could not be traced to exposure, communi-
cation, direct or indirect, with those previously affected. *This may be the
case in a few instances ;* but how difficult it is to prove mediate infection,
or that which takes place through the medium of fomites ; and it may be
asked, on how many occasions are persons liable to be affected by an
infectious principle, without being able to account for the manner in which
it took place, or to refer to the individuals whence it emanated, or to the
media through which it was conveyed ?" True, most perfectly true ; and
the obvious inference, therefore, must surely be, that such diseases are pro-
pagated in other ways besides that of infectious emanations direct from the
bodies of the sick. We verily believe that our author stands almost alone
among the members of our profession in the extreme and extravagant opin-
ion which he has avowed, that " the extension of Pestilential Cholera in
different countries has been entirely owing to the neglect of quarantine
and other means of prevention." There is little chance of almost any

one assenting to so wild a fancy as this; but there is a chance that some medical men might still recommend a partial degree of restraint, and the partial adoption of prohibitory measures (notwithstanding the utter failure of all attempts of the kind), in the event of a second invasion of Europe by the Epidemic Cholera—an event which seems, from the recent accounts of its progress westward, to be any thing but improbable. This, indeed, has been the chief reason of our having devoted so much time and trouble to the investigation of the question upon the present occasion, seeing that, ere long, it *may* engage the thoughts not of the medical profession alone, but of the public generally. The authority of Dr. Copland is deservedly so high, and his great work is so generally known and esteemed, that it was nothing more than a duty to sift and determine the value of opinions, upon a subject too of such deep and universal interest, to which we knew a very wide currency would be given. Whether we have shown cause for contesting their accuracy and disputing their validity, we gladly leave to others to decide ; nor do we feel much doubt as to the verdict that will be returned, notwithstanding the ungracious insinuation of our learned opponent, that his views can only be resisted " by the interested, by the prejudiced, and by the insufficiently informed."

In consequence of the great extension of our observations on Dr. Copland's article on Pestilential Cholera, we have left ourselves but little space to notice the work of Dr. White on the Plague. But this is not much to be regretted ; since, from the very nature of its contents we must have been utterly precluded from analysing its contents at any length. The *late* plague of Corfu, which it professes to describe, occurred upwards of 30 years ago ; and our author, who was superintendent of the infected district of Lefchimo in that island, wrote at that time the present work, without, however, having made up his mind to publish it or not. Why he has deferred its publication so long, is not very obvious. But as it does not contain even so much as an allusion to what has been done by others since the year 1816, we may be very fairly excused from bringing any portion of its details before our readers. To write in the present day of the Plague without reference to the observations that have been made in various countries during the last quarter of a century, more especially during the last twelve years in Egypt, is like treating of diseases of the chest without mentioning the discoveries of Laennec, or discoursing on animal chemistry with the name and labours of Liebig left out.

Although unable, therefore, to report favourably of Dr. White's treatise ourselves, we willingly give him the benefit of Dr. Copland's recommendation, appended to his article on the Plague. It stands thus : " This important work, the result of much experience, appeared as this sheet was going to press. It contains numerous additional proofs of the truth of the doctrines for which I have contended." What the nature of these doctrines is, our readers will easily imagine ; for, if Epidemic Cholera be so very infectious—that infection from one individual to another has been the chief agent in its dissemination from the shores of the Ganges to those of the St. Lawrence, from the tropic of Capricorn even to the frozen shores of the Baltic—what must the Plague itself be ? It would seem as if the very contemplation of the subject had, in some strange and mysterious way, inoculated our learned author with some of those hot and fiery

particles which, according to the doctrines of many of the old physicians, served to inflame the blood and disorder the animal spirits in all malignant fevers. Instead of taking a calm and dispassionate view of the important and much vexed question as to the mode or modes of the transmission of the disease, he treats the whole subject as a special pleader might be supposed would have done, if retained by the employés of quarantine establishments to defend their long enjoyed and now threatened privileges. Mere declamation and bold assertion are substituted for patient enquiry and sober deduction ; while unmeasured, and often most unbecoming, abuse is made to take the place of gentlemanly disputation. The whole article teems with exaggerated statements, with not a few errors and inconsistencies intermixed. We have no intention now of canvassing either the data or the conclusions that are adduced. This labour indeed is quite unnecessary after the ample exposition which we gave in our number for last October, of the truly admirable report of the French Academy on the Plague. From the very favourable manner in which that exposition has been received by the medical public, we feel quite assured that the views therein advocated, will be found on further examination to be both most reasonable and correct. The manner in which Dr. Copland has treated the French report is utterly inconsistent alike with good taste, fair dealing, or sound judgment. All the evidence that militates against his views is most religiously left out, and even the names of some of the most distinguished physicians, who, after so nobly devoting themselves for years to the not unperilous task of examining the real not the biblical history of the Plague in the land of its worst malignity, have declared themselves on the opposite side of the question, are not so much as mentioned. It would be easy to adduce passage upon passage from Dr. C.'s narrative, to show that he has quite forgotten the character of an impartial umpire or judge for that of a zealous and somewhat unscrupulous advocate. The whole of the long note at page 207 is a flagrant instance of the veriest lawyer-like quibbling. What shall we say of an author who, in alluding to the influence of *epidemic foci*—in other words, of localities where (what has been called) an epidemic constitution of the atmosphere prevails—on the diffusion of a pestilential disease, indulges in such language as this ?

" Without, however, enquiring into the origin and nature of these ' foyers '—for such enquiry is never thought of by them (the Commissioners of the French Academy), it being quite sufficient to assume their existence—it must be inferred that they are most unaccountable things, seeing that they possess neither length, breadth, nor thickness, nor other material characteristics, and yet produce material effects; that they are neither recognised nor recognisable, and yet they destroy large portions of the human race; that their existence is an hypothesis, a supposition, and yet they produce ruin and devastation ; that their hypothetical presence is only for a few weeks or months, and then, after many hundreds of years, never again to return, or then, after short intervals, according to the manner of their reception. How very odd is this occurrence !"

Nay ; how very strange is such an unmeaning tirade upon such an occasion ! But it is not the French Academicians alone that come in for ridicule and abuse. Every one that does not hold with our author—who, be it remembered, never saw a case of plague in his lifetime—is thus summarily disposed of :—

"I have hesitated to consider these arguments (adduced by those who contend that infection is not the chief agent in the propagation of the disease—*Rev.*) at all; because, when a matter is fully and irrefragably established on facts, any argument which can be brought against it—all special pleadings, however ingenious, argue either the fractious spirit of the objector, or some motive actuating him to prevent a belief in the truth. On this account, therefore, the arguments—or rather the sophistical puerilities, which have been adduced by ignorant, interested, or captious and splenetic persons, hardly deserve a notice, and only when they seem to possess an air of importance—an importance derived only from unwarranted assumptions, confident assertions, and ill-founded pretension; and, in some instances, also from the official or professional position of some of those who have ventured into the field of controversy—and not from any solid array of facts or of inferences logically drawn from facts. But irrespective of the want of every claimant of sound argument, a very large proportion of the Anti-infectionists betray, as shown above, an utter ignorance of the distempers respecting the nature of which they speak with confidence, and even with disgusting pretension—and not only of these distempers, but even of others, either allied or analogous to them, of which they have incidentally taken notice. This assertion may be conceived by some, who have not had opportunities of judging for themselves in the matter, as severe or ill-founded; but it could be very easily proved, if it deserved the space which would be wasted in proving it."

The only comment we shall make upon this passage is to quote the opinion of a gentleman who has, within the last few years, had a good deal of experience in the disease of which he treats, but to whom Dr. Copland makes no reference; we mean Dr. Robertson, deputy-inspector of hospitals, who served with our troops lately engaged in Syria. In 1841, he thus expressed himself in his official report to the Government:—

"In reference to the contagious or non-contagious* nature of this at times frightful disease, I beg to state that the result of all my experience leads me to believe that the disease originates in local causes, and that it is endemic in Syria and Egypt; that it is not of a highly contagious nature; and that, if ever so at all, some other concurrent circumstances are necessary to render it so. Extreme and exclusive opinions on the doctrine of contagion are hardly warranted by the present state of our knowledge. My own firm conviction is, that the Plague cannot be communicated from one person to another in a pure atmosphere, even by contact; but I am not prepared to assert that, if plague-patients are crowded together in confined and ill-ventilated apartments, infection will not be produced, just as happens in Typhus fever."

We are glad to observe that our government evinces every disposition to introduce a relaxation of the existing Quarantine Regulations. The recent removal of all quarantine upon vessels (with a clean Bill of Health) arriving from any port in the Turkish dominions, is but an earnest of still greater and more important alterations.

We have now examined the history of two of the Pestilences described by Dr. Copland; in our next we propose to bring the third, viz. the Yellow Fever, under the notice of our readers.

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* These words are here used in the general sense of "transmissible" and "non-transmissible."—*Rev.*

On Tumours of the Uterus and its Appendages. (Jacksonian
Prize Dissertation.) By *Thomas Stafford Lee*, M.R.C.S.E., &c.
London: John Churchill, 1847.

Mr. Lee was induced to publish this Essay from its having been selected
for the Jacksonian Prize. The author appears to have been a diligent
student of obstetric medicine, as he tells us that he gained Dr. Murphy's
gold medal at the London University some years since, and that he has
availed himself of opportunities, both in Paris and London, for becoming
practically acquainted with diseases of the female sexual organs. In esti-
mating the merit of the work, it is necessary to bear in mind that the
author is still young—that his experience on the diseases he writes upon
is necessarily limited—and that he has had to collect materials principally
from other resources and to arrange, record and compile them in an exact
and faithful manner. The class of diseases which the Essay comprises is
the least accessible, for practical investigation, to the student or general
practitioner, of any which come before him; and novel views, or new facts
of importance, are not to be expected, excepting where the field for obser-
vation is extensive. Mr. Lee has had the wisdom not to attempt too
much. He appears to have assigned himself a very useful and important
task; and, without straining after the display, which so often dazzles the
young author, of being an original observer, he has investigated with much
diligence the preparations in some of the best museums in London, and
has taken great pains to collect authentic information on the subject of
his dissertation. Hence it is that the body of the work is good, and one
or two subjects, particularly that on the diseases of the ovary, is entitled
to a still higher commendation. The chapter on Ovarian Dropsy is the
fullest and the best we have yet met with; and, with the interest which at
present attaches to cystic diseases of the ovary, it is one which well sup-
plies a want which was generally felt. But, while it is our pleasing duty
thus favourably to notice the most important part of Mr. Lee's Disser-
tation, we feel it equally incumbent on us to reprehend his style of com-
position. It is not only slovenly but faulty and sometimes ungrammatical.
There are numerous errors which even a superficial revision ought to have
corrected; and we have grievously to complain of the perplexing way in
which the personal pronouns I, we, and you, are used. We do not wish
to attach too much importance to mere style, and we are far from being
over fastidious about it. We would carefully discriminate between the
substantial merits of a work like Mr. Lee's, and the defect we have hint-
ed at. But a clear perspicuous composition—an easy expression of
thought or narration of facts—ought to be the first attainment, an edu-
cational rudiment, of every member of the medical profession.

The harmful and comparatively harmless qualities of the tumours which
attack the uterus form the main division of this part of the Essay. The
latter or benign tumours are first considered—and subsequently the more
malignant growths. The five chapters which include the subdivisions
under these two primary heads, refer respectively to Fibrous Tumours—
Polypoid Tumours—Soft Polypi—Cauliflower Excrescence of the Os
Uteri—and Encephaloid Polypi.

Mr. Lee ranges the fibrous tumours, as other authors have done, according to their situation. Some spring from the sub-peritoneal tissue and grow outwards, carrying the serous membrane before them, which first partially and then completely covers them, and forms a moveable stalk connecting them to the womb. Others, again, are imbedded in the proper structure of the uterus, which forms a loose investment around them, from which they may be enucleated : and, lastly, they may grow inwards towards the cavity of the womb—the lining membrane of which becomes their superficial- covering. Our author says that the latter variety is the most frequent; in proof of which, he has tabulated 74 museum preparations—from which it appears, that 19 distend the cavity, 18 are attached to the anterior wall, 18 to the fundus externally, 4 only to the anterior wall, 4 to the posterior part of the cervix, and 5 in all parts of the womb. This table is interesting, as showing what we believe a far more extended numerical investigation would prove correct ; namely, the comparative immunity from these growths, which the front wall of the body and the neck of the womb enjoy. But we doubt the other alleged fact—of the greater frequency of the submucous variety over the central and subserous situations. If Bayle be right in declaring that the fifth part of women, above the age of 35 years, are affected with fibrous tumours—and Dr. Lee does not think he has over-estimated their frequency—we need scarcely say that such a meagre table as 74 musuem preparations are just as likely to prove what is false as what is true. The fact is, in the large hospitals, there is a wholesale annual waste of these tumours, and those only are preserved which exhibit some peculiarity or special mark of interest. And hence we believe that Mr. Lee's table has been constructed from picked cases, to which the hundreds which have been destroyed ought to have been added before any undeniable inference could be made out. So far as our own experience goes, the submucous variety is happily the most rare, and we say this not only from our general impression from post-mortem examinations, but also from the practical fact that fibrous growths which cause bleeding from the uterus (the symptom which mostly attends the submucous tumours) are not very frequent. Our author has described very fully the morbid anatomy of these growths, and the changes they undergo. A microscopic analysis of them, from various situations in the uterus, " invariably presents a cellulo-fibrous appearance." Their tendency to pass into a cartilaginous or bony state, and the way in which the calcareous deposit sometimes forms a superficial layer, enclosing or shelling a growth, is noticed, and illustrative preparations referred to. The vascularity of fibrous tumours has been denied, but Mr. Lee correctly, we think, believes them to have a supply of arteries, the veins being collected around them.

" At no distant period was it affirmed that fibrous tumours were not vascular, and that they could not be injected : and this opinion was confirmed by the fact, that they remained uninjected, while all other parts of the womb had become quite red with injection. A preparation of this sort is preserved in the Museum of St. Bartholomew's Hospital, No. 10, Series 26. But, however, this art of injecting, during the last few years, has been better understood, and structures before considered nonvascular have been completely injected : and this is the case with fibrous tumours of the uterus. In the Musuem of Guy's Hospital there are three preparations illustrating this fact, 2268 ⁸ ⁶, 2270, and 2266 ³ ² ; in all these cases the injection has penetrated the morbid mass.

"Although uterine tumours can be injected, the vessels which are distributed to them are very small and few in number; and some tumours (even in the same uterus) cannot be injected at all. The vessels which penetrate the tumour are given off from the cellular cyst around them, which is extremely vascular; and it is from this layer that those fearful hæmorrhages arise when the tumour protrudes into the cavity of the uterus. We are thus supplied with the reason why these bodies do not undergo the changes consequent on inflammation, but only those of disorganization; for, if inflammatory action is set up in the cyst and the surrounding tissues of the womb, the small vessels passing to the tumour become obliterated, the supply of blood to the tumour is cut off, and the tumour itself dies.

"No veins are observed in the structure of these tumours; they only appear to be collected on their surface, where they are large and varicose; Savrard states that they are sometimes as large as the crural veins. They have been carefully injected, but no injection passes into the tumour."—P. 9.

The general symptoms which accompany fibrous tumours of the uterus are common to other affections, and a vaginal examination, with the assistance of the uterine sound, afford the principal means of diagnosis. Mr. Lee extols the use of the sound in the investigation of uterine tumours, and he expresses an opinion that, when "the profession becomes more acquainted with the instrument, the diagnosis of abdominal tumours will be more correct." There are several affections with which fibrous tumours of the uterus may be confounded, and Mr. Lee marks the means of diagnosis in inflammatory indurations of the uterus, pregnancy, ovarian dropsy, other abdominal tumours not connected with the uterus, and polypi within the cavity of the womb. Of these, the most important in a practical point of view are the circumscribed indurations which follow inflammatory attacks, or even congestions of the womb, and which closely simulate fibrous growths. M. Lisfranc has directed attention to this subject, and it is well worthy careful consideration. This author notices the great difficulty in distinguishing between the two, and he mentions the fact, that in his earlier practice he perpetually regarded these indurations as fibrous growths. Mr. Lee describes the diagnostic marks of these affections in the following manner:

"The difficulty of diagnosis between these two diseases is so great, that it led M. Lisfranc to believe that they could not be distinguished, except when the fibrous tumour became polypoid. But in inflammatory action of the uterus the constitutional fever appears at the commencement of the disease, almost before the swelling; while in fibrous tumour the mass is distinctly felt before the constitutional symptoms arise; there is also great pain on pressure. In hard tumours the swelling is more defined, and they are not usually painful on pressure. But the most diagnostic mark between these diseases is the effect of treatment on them. If the one yields to treatment, it may then be considered to depend on induration; as fibrous tumour has, according to some, never been reduced."—P. 19.

In the diagnosis between pregnancy and fibrous growths, Mr. Lee depends a great deal on the areolar changes. He says that, in cases of fibrous tumour of the uterus when the disease has caused sufficient irritation to induce the patient to apply for advice, he has found "that the breasts have, in a great majority of cases, been enlarged and tumid; that the areola has, in eight cases out of ten, been enlarged and darkened; that,

in the same number, the follicles have been more or less numerous, in some they have been remarkably distinct : but that in only one case out of ten (and that a very suspicious case) was there any moisture or œdema of the nipple or areola present." Besides, the fresh, raised, varnished look of the areola (for we do not think the word œdema describes the change fairly), the character of the swelling of the gravid womb, its even surface, regular development, elastic and doughy feel, forms an appreciable difference between pregnancy and large fibrous growths. "In disease," says our author, "the tumour is irregular and of a stony hardness, no placental murmur or fœtal heart is heard." Undoubtedly the main sign of pregnancy, which outweighs all others in value and easy appreciation, is the fœtal heart—but we think our author has fallen into a practical error when he says there is no "placental murmur" when fibrous tumours are present. Of course we mean that a sound closely resembling the uterine sound—which our author calls placental murmur (although its mechanism is not yet clearly made out)—is undoubtedly to be heard where fibrous tumours press on the large vessels in or on the margin of the pelvis; so much alike are the murmurs in these two cases, that we have ourselves listened to the inguinal regions of two women, the one pregnant, and the other with a fibrous tumour inclined to the right side, in adjoining beds, and we could not distinguish any difference between them. We look upon the so-called placental murmur as utterly useless in the diagnosis of pregnancy from other abdominal tumours.

The Treatment of Uterine Tumours.—Some authors suppose that fibrous tumours may be entirely absorbed—which we conclude is now to be interpreted into the fact that, under treatment, indurations of the womb have been reduced, which have been mistaken for fibrous growths.

"Local depletion, by the aid of leeches, is the best method of treatment; but these must be applied to the tumour *itself*: in a robust patient, of bloated habit, with great pain in the tumour, and with the signs of local congestion, as piles, the application of six leeches twice a week to the neck or body of the womb will not be at all too much; but if the patient is anemic, one application weekly is sufficient. The introduction of the leeches to the tumour itself is of great importance: I have seen relays of them applied to the perinæum, rectum and groins, be of little use, while one depletion from the tumour itself has been of the utmost service. A hip bath, after the leeches come away, is very beneficial; it encourages the bleeding, and relaxes the parts, and by these means removes the excessive pain which is usually present.
"During the intervals of the leechings, mercury or iodine should be applied to the womb itself, either in its pure state, or made more consistent with wax. The ointment used at the Red Lion Hospital for women is mixed with one part of the Ung. Hyd. Fort., one part of Cera Flava, and one part of lard. This is rolled up in the form of a ball, and introduced into the vagina every night, as high up as possible, in order that it may envelop the os and cervix of the uterus: this remains for twenty-four hours, when it has generally disappeared—it may then be repeated."
—P. 25.

Under this plan of treatment the cervix, which before may have been obliterated, again bulges below the tumour, and the mass itself sometimes rises above the brim of the pelvis, affording marked relief to the pelvic organs. It appears that Dr. Rigby has, in some cases, injected the strong

mercurial ointment into the cavity of the uterus with manifest advantage. In one case, a single large solid growth appeared to separate into distinct parts, and to become less. Mr. Lee discards the use of mercury internally, but he speaks favourably of the treatment by iodine, which has been of late years the most usual remedy for these growths. Mr. Lee only passingly mentions the plan of enucleating fibrous tumours when they can be got at with the scalpel, although we think he would have done wisely and contributed some useful information had he carefully investigated the cases in which this practice has been adopted.

The several varieties of polypi, as described by different authors, are succinctly noticed by Mr. Lee. Thus we have the fibrous tumour growing inwards towards the cavity of the uterus, acquiring a stalk, and thus becoming a polypus. Mr. Lee, unnecessarily we think, calls this variety polypoid; then we have the vesicular polypi, polypi from the enlargement of the Nabothian glands, fibro-cellular polypi, cellulo-vascular polypi, mucous polypi, and the channelled polypi of the cervix. This latter variety consists of a polypus springing from the neck of the womb, the substance of which is traversed by large channels, terminating by open mouths on the surface of the growth, and filled with thick clear mucus. It was first noticed and described by Dr. Oldham.

Mr. Lee has omitted to consider the influence of pregnancy on the growth of polypi, beyond, at least, a mere incidental allusion to it. The subject is interesting and important, and undoubtedly it came within the scope of the subject of the Essay.

Cauliflower excrescence of the os uteri is supposed by Mr. Lee to be a distinct affection from fungoid disease of this part, although the only distinguishing marks between the two are stated in the following paragraph:·

"If a proper examination be made on this disease, it is not difficult to distinguish it; but it has been mistaken for other growths. The most likely one is that arising from fungoid cancer: a case of this kind occurred to myself. A patient presented herself with all the symptoms of cauliflower excrescence, profuse watery discharge, no pain, health good, &c., and had from the os uteri fungoid granulations, some of which broke down upon examination: but on viewing the growths by the speculum the error was immediately corrected—they were large, flat, and not prominent."—P. 93.

For our own part we can see no reason why these two affections should not be grouped together. The difference between them is very slight; and, indeed, in reading Dr. Clarke's description of the cauliflower excrescence, and comparing it with cases of fungoid disease, which are by no means rare, no essential distinction can be made between them. Perhaps the one may feel a little more like a cauliflower than the other—but the seat, development, symptoms, and general character of the growths are so much alike that it appears to us to be unnecessary to separate them. Mr. Lee has altogether omitted the description of fungoid cancer, for assuredly the encephaloid tumour, the most frequent, he says, of polypoid growths, is perfectly distinct from it. We think he might just as well have begun a chapter on "fungoid disease of the uterus," and then have added, *vide* cauliflower excrescence of the os uteri. There appears to us to be a want, in this part of the Essay, of clear, well-defined views on the subject of malignant growths. If, as our author says, cauliflower excres-

cence is a very rare disease, and that the encephaloid growth, such as he has described it, is the next variety, we are well persuaded that he has perfectly missed a class of cases which frequently come under observation, and which the term fungoid very well designates. These growths are not confined to the os or cervix uteri, for they sometimes spring from the cavity of the womb. They occur in women with full capillary circulation, and generally wearing the aspect of good health. They are bleeding growths—bleeding when touched during a vaginal examination, or sexual coitus, or by the pipe of an injecting syringe, bleeding, too, sometimes spontaneously ; and so full are they of blood-vessels that when, by the act of coughing, sneezing, or lifting weights, &c., an increased flow of blood is derived towards them, the capillaries give way, and again they bleed. They are growths, too, attended by a watery discharge, sometimes very fœtid and acrimonious. They are a species of soft cancer, and are shaped and contracted by the vagina. By degrees the loss which is sustained by bleeding and discharge brings on anæmia, then the severe pains of cancer are felt, and death takes place. If a ligature is placed around even a large growth, it shrinks to nothing, and after death it appears flocculent like the villi of the chorion. Wherein is the difference between cauliflower excrescence and this fungoid disease ? and yet, we repeat, these latter cases are very far from rare. The excision of these growths, or their removal by ligature, is advocated by Mr. Lee in accordance with the published cases of several obstetric physicians. Here and there an apparently complete success has followed this practice, and appears to us quite to justify the operation. Even the partial success which attends a removal of the mass prolongs life by taking away for a time the source of hæmorrhage and watery discharge. The difficulty in the operation consists in noosing or excising the entire diseased portion, and the principal danger is from hæmorrhage, which can, however be controlled by the plug.

The second part of the work is devoted to tumours connected with the appendages of the womb, and of these the most important is the encysted ovarian dropsy. Mr. Lee has collected one hundred and forty cases of this disease, some of which have passed under his own notice, and others have been recorded in medical journals, and these have formed the data of his observations on the subject. These 140 cases are tabulated in several ways, so as numerically to prove, where the details of them have been sufficiently explicit, the various facts which are stated. Thus it is that, at the commencement, we meet with a disputed point, which is settled by a statistical table of 136 cases. Dr. Burns thinks that married women are most liable to this disease, whilst Dr. Ashwell believes that it attacks the single most frequently. Mr. Lee's table shows that, of one hundred and thirty-six cases, eighty-eight were married, eleven were widows, and only thirty-seven were single, thus giving a decided preponderance to the married. Then again, with reference to the age of patients with the disease, it appears that of one hundred and twenty-six cases, only three occurred in women under twenty years of age ; thirty-seven between 20 and 30 ; forty-five between 30 and 40 ; twenty-six between 40 and 50 ; nineteen between 50 and 60 ; three between 60 and 70 ; two between 70 and 80. Hence it seems that the disease is particularly rife during the child-bearing period ; when the sexual organs are in their fullest vigour. There is ano-

ther table showing the duration of ovarian dropsy, from whence it appears
"that out of 131 cases, the disease lasted only one year in 38, only two
years in 25: 17 patients survived three years, 10 four years, 3 five years,
5 six years, 4 seven years, 3 eight years, 1 nine years, 1 ten years, 1 eleven
years, 5 twelve years, 5 sixteen years, 1 twenty years, 1 twenty-two years,
2 twenty-five years, and 1 thirty years."

Table No. 4, is headed " of the imputed causes of ovarian dropsy in
thirty-six cases." Fourteen cases are ascribed to marriage or its con-
sequences—that is, five followed marriage, and the patients regarded it as
the cause, and nine followed parturition. Seven cases were supposed to
be caused by a sudden suppression of the menses. Two cases were traced
to abortion; three to exposure to cold; two to falls or blows; one to a
violent fit of anger; one to an eruption, and one to disappointed love.
There were only two which were assigned to the catamenial decline, which
Denman thought the most frequent cause. A Table is prepared to show
the frequency of ovarian disease in the right, left, or both ovaries, the
inference from which is, that the right is affected in frequency to the left,
and to both ovaries as 50 is to 35 and 8. This conclusion is at variance with
Mr. B. Cooper's results in 50 cases, from which it appeared that the left
ovary was more commonly diseased than the right. We look upon it that
Mr. Lee's table is no more secure with his 93 cases of a truthful result
than Mr. Cooper's, and that the question is still quite undecided. We
shall not follow our author into the pathology of ovarian dropsy, which has
been so fully written upon by several authors, more especially by Dr.
Hodgkin. The diagnosis of this disease is carefully described; but the
most important part of this Chapter is on its treatment. Mr. Lee has not
entered so fully into the subject of the treatment of this disease in its early
stages as he should have done. A little of the industry which has been
spent on the attractive subject of Ovariotomy, might have been advan-
tageously employed in collecting some facts on the influence of leeching,
mercury, and counter-irritants, in checking the growth of small tumours.
It is well known that the late Dr. Hamilton treated ovarian cysts by
bandaging, percussion, and the internal use of the muriate of lime; but
the success which followed its adoption in Dr. Hamilton's hands has not
been copied in England, and it has fallen into desuetude. Mr. J. Brown,
of London, is said to have cured several cases, by tapping the cyst, after
giving the patient mercury and diuretics, and then tightly bandaging the
abdomen. We transcribe a short outline of his practice from Mr. Lee's
book.

" I divide," says Mr. Brown, "my treatment into constitutional and local treat-
ment, and treatment after tapping.

" 1. The constitutional one consists in the administration of mercurials, inter-
nally as alteratives, and externally by friction over the abdomen, and continued
until the gums are slightly but decidedly affected: and this must be continued for
some weeks. I lay particular stress upon this point: at the same time diuretics
must be given, and after the first week tonics must be combined with them. The
food should consist of light animal diet, and should be unstimulating; and the pa-
tient should take daily exercise in the air."

" 2. Local treatment. This consists of the careful application of a tight flan-
nel bandage, so as to produce considerable pressure over the tumour. When it
is found that the abdominal action has been checked by a positive decrease in

the tumour, and a continuation of such decrease, or by a positive non-increase for some weeks, then the cyst should be tapped and all its fluid evacuated."

" 3. Treatment after tapping consists of accurate padding and tight bandaging over the cyst and body generally for two or three weeks ; and the medicines and position ought to be continued for at least six weeks. I would particularly wish to enforce the importance of the after-treatment, as on that depends very much the success or failure of the case."—P. 161.

Certainly, the system of tight bandaging and padding, after a patient has been salivated is very formidable, and the recital of the sufferings and dangers to which patients have been exposed is sufficient to make any judicious practitioner seriously pause before he sanctions it. Mr. Lee seems to question the successful issue of Mr. Brown's cases, and on the authority of a physician, whose name however does not appear, he mentions two of the " successful " cases—one of which has again been tapped ; and, after the death of the other, the cyst was found as large as ever. Then, again, much doubt seems to hang on the genuineness of the cases, as to whether they have all been ovarian cysts, or some other abdominal enlargement, so that altogether, Mr. Brown's success appears to have been sometimes temporary only and altogether very equivocal.

Of the surgical means for the cure of ovarian dropsy, there are two particularly described, viz. tapping and the excision of the cyst. As a palliative means tapping is sometimes very successful ; and cases are recorded where patients have lived many years, the fluid of the cyst being frequently drawn off by the trocar. In Mr. Martineau's case, 13 hogsheads of fluid were taken away from an ovarian cyst in eighty different tappings. But tapping is not without its danger—syncope, and speedy exhaustion may sometimes follow the evacuation of the fluid—a large vessel may be punctured, the cyst may inflame, and peritonitis may ensue. It sometimes is only partially successful, when the tumour is multilocular. Mr. Lee is favourable to an early recourse to paracentesis ; and he thinks that, when the tumour can be felt from the posterior wall of the vagina, and fluctuation is distinct, it ought to be tapped. We could have wished Mr. Lee to have collected more facts, to show the results of this early tapping, on the value of which he speaks authoritatively and without doubt.

In order to clear the way for a correct appreciation of the operation of ovariotomy, Mr. Lee has collected a number of cases in which tapping was performed, and he has noted the duration of life after it has been had recourse to.

Putting together 57 cases of this kind, taken from Mr. Lee's own table and Mr. Southam's, in which death occurred, it appears " that 24 of the 57 died after the first tapping—that they all died in eight months—that 20 of the 24 died within one month—and 12 of the 20 within seven days." Mr. Lee thinks it possible that many of the cases from which his table has been framed, may have been published as peculiar cases, which would of course vitiate the truth of the conclusions. Many eminent men whom he spoke to about it, thought the mortality after the first tapping was too great ; but he is himself disposed to think it correct. We must own that the numbers appear very startling, and do not accord with our general impression ; but we think that it discloses a far larger mortality, admitting even the possible errors in it, than is generally supposed. Our author concludes that, " taken at its best, tapping is a very dangerous means of

palliating ovarian dropsy ; that, when it is had recourse to, it will have to
be frequently repeated ; that the relief afforded between each operation
will become gradually less, and the dangers consequently greater. This,
then, is a valuable argument in favour of some other means of treating
ovarian dropsy."

We must now advert to the other operation—namely, the removal of
the disease by excision. Mr. Lee's views on this subject are founded on
one hundred and eighteen cases in which gastrotomy has been performed,
which he has collected with much diligence, and carefully tabulated. Of
these 78 have recovered, and 40 have died ; in ninety-two the tumour has
been removed: in nineteen it was not extracted ; and in six there was no
tumour to be found. But we meet at once with a source of error in the
fact, that (according to Mr. Phillips, Dr. Bird, and Mr. Lee) there are
several unsuccessful operations which are not recorded—augmenting, of
course, the mortality of the operation, without, we fear, being paired by
a corresponding omission of the more fortunate cases. Of these 118 cases
of gastrotomy, sixty-nine were for the removal of encysted tumours of the
ovary ; sixteen for solid tumours of the ovary ; six for uterine tumours
(fibrous growths) ; one for an omental tumour ; one for the cyst of an
ovarian abscess ; in six no tumour was found ; and the particular disease
is not mentioned in 19. Of the 69 cases of encysted dropsy, 48 recovered
and 21 died. Of the 16 cases of solid tumours, nine recovered and seven
died ; and of the six cases of fibrous tumour of the uterus, two recovered
and four died.

There are two or three important and obvious points on which Mr. Lee
makes some observations. One of them is on the mortality after ovarioto-
my, another, on the difficulties in the diagnosis of ovarian dropsy, and par-
ticularly on the means of ascertaining the presence of adhesions, which
have proved the principal hindrance in the uncompleted cases. Mr. Lee
estimates the average mortality in ovariotomy as one in three ; and, com-
paring this with the mortality in other capital operations, it appears to
be rather under than above the mark. Malgaigne has computed the
deaths after amputations, of all kinds, in the Parisian hospitals, as four
in every ten cases ; and it is much the same in the Glasgow and Edin-
burgh Infirmaries. In the tying of arteries, the deaths have been 3½ in
10 ; and in cases of hernia, 5 in 10.

The tendency which ovarian tumours have to contract adhesions to the
structures and viscera adjacent to them, is a formidable impediment to
their extraction. In the cases which have been recorded, they were found
to exist in more than one-half of the number. They may be numerous
and firm, without any previous known inflammatory attack ; and it is a
mistake to suppose that tapping causes adhesion. In the latter case, the
collapsed and empty cyst sinks down into the pelvis, away from the open-
ing which has been made by the trocar.

There have been several supposed signs of adhesion, on which, however,
as single signs, no absolute reliance can be placed. An ovarian sac may
be moveable, and yet adhesions, probably long and firm, may be present.
Dr. Bright's sign of the new-leather creaking or crepitation as demon-
strating adhesions, may not be heard ; first, because it is principally to be
heard if the adhesions are recent, or, according to Mr. Southam, only when

fluid is present; and then, again, it may be present, but so deeply placed behind the sac, that it cannot be perceived by the ear. A valuable sign of the presence of adhesions in front was communicated to Mr. Lee by Dr. Bird.

" When an ovarian sac has attained a size which is productive of great inconvenience and distress to the neighbouring organs, the parietes of the abdomen become greatly attenuated, and the space between the two recti abdominalis is much enlarged; this is well seen if the patient be told, while lying on her back, to raise herself into the sitting posture without the assistance of her arms; and if the sac within be free in its motions it will immediately be protruded through the space between the two recti muscles, and produce an oval enlargement; but supposing the cyst to be intimately adherent in front, no such bulging will take place."—P. 189.

The action of the diaphragm on the tumour will help to determine the existence of adhesions.

" Another symptom of this sort is valuable, and that is the action of the diaphragm upon the tumour. If the measurement of the abdomen be obtained after the patient has taken a deep inspiration, and again after a full expiration, you will find, when the cyst is free, that the two measurements frequently vary an inch, sometimes more; showing that the diaphragm in the inspiratory movement had driven down the unattached cyst, while it being free, the expiratory effort allowed it to repossess its original position in the abdomen."—P. 189.

Tapping the cyst is a practical means of learning the presence of adhesions.

" On the withdrawal of the fluid, the walls of the abdomen are observed to follow closely the contracting cyst, when adhesions are present, and have externally a drawn-in and puckered appearance, while the cyst does not descend into the pelvis; whereas, when the cyst is free from adhesions, it may be found after its evacuation low in the pelvis, forming a hard tumour at the lower part of the abdomen, while the walls of the abdomen may remain free."—P. 190.

It is, however, in a careful collection of several of these signs that the complication is to be made out.

." But, although the dependence on these symptoms singly may lead us into error, the combination of many of them will generally be conclusive, supposing the patient, when rising by her own exertions, protrudes the cyst as an oval bulging tumour through the space left by the separation of the recti. That on a deep inspiration the tumour is pressed downwards more into the cavity of the abdomen, and then recedes on an expiration; that the bladder is free, and can ascend into the anterior part of the abdomen when filled with air; that all crepitation is absent, and the tumour tolerably moveable; then we may with satisfaction say that adhesions do not exist. Another additional evidence would be, if the patient had been previously tapped, and the sac had entirely disappeared after the operation."—P. 194.

Leaving the question as to whether ovariotomy is expedient or not until the conclusion of the chapter, our author describes the two different modes of operating, which are respectively called the major and minor operations. When the incision has exceeded six inches in length Mr. Lee has classed the case as belonging to the former, whilst an incision under six inches in length is ranked as a minor operation. Eighty-five cases have been operated on by the large opening, and the mortality has been one in

three.   Twenty-three cases have been relieved by the minor operation, and the deaths have been one in six.   It is still a disputed point which of the two is the most feasible operation.   Dr. Clay, Mr. Walne, and others preferring the major, Mr. Jefferson, Dr. F. Bird, and others holding to the minor.   Mr. Lee argues for the latter, and the obvious fact that the latter may, in case of need, be converted into the former is a strong general argument in its favour.

Mr. Lee has learned, by private communications from Mr. Lane, Dr. Clay and Dr. Bird, that the women on whom they operated successfully continue to enjoy good health.   We conceive this to be a most important addition, and we think that these and other operators should concisely publish the after history of their cases.

Mr. Lee thinks that, in the majority of cases, " ovariotomy is most decidedly unjustifiable," and he arrives at this conclusion from the difficulty of the diagnosis in the disease, and from the frequent existence of adhesions.   He thinks the increased mortality, when adhesions have been present, disqualifies such cases for this means of relief, and when the diagnosis is obscure he would of course avoid so frightful an operation.   He talks in very contradictory terms of the value of the uterine sound in clearing the diagnosis in these cases, for in the text he says that " no tumour of the uterus ought to be mistaken for ovarian disease since the introduction of the uterine sound by Professor Simpson ;" and then, in a foot-note, it appears that " he and several others, men in the constant habit of using the sound, were deceived in a case of ovarian dropsy." We think he has overstrained the value which this really useful obstetric instrument affords in these cases.

Mr. Lee, however, is " decidedly of opinion that in some cases the operation is *very justifiable*."   It is particularly so where the " cyst is single and uncomplicated with hard matter, and the powers of life active."

The treatment which Dr. F. Bird adopts after extirpation consists principally in being able pretty quickly so to raise the temperature of the room as to cause profuse sweating, for which purpose also he gives the patient plentifully of ice.   Should febrile symptoms arise, he brings on the free action of the skin, and watches his patient unremittingly for some days.

We have thus brought before our readers the principal results which flow from Mr. Lee's compilation on this interesting subject, and with it our observations on his Dissertation.   We congratulate him on the honourable prize which he has won, and we cordially wish him success in the department of medicine which he appears to have chosen.   But we seriously advise him, while he yet has time, to cultivate a knowledge of general literature, not only for the alluring purposes of disciplining, storing and enlarging the mind, but for the lower and indispensable object of writing correctly.

I. LECONS SUR LES PHENOMENES PHYSIQUES DES CORPS VIVANTS. By Signor *Carlo Matteucci,* Professor in the University of Pisa, &c. Paris, 1847. 12mo. pp. 406, 18 woodcuts.
Lectures on the Physical Phenomena of Human Beings.

II. ELECTRO-PHYSIOLOGICAL RESEARCHES. First Memoir. THE MUSCULAR CURRENT. By the same.

III. ELECTRO-PHYSIOLOGICAL RESEARCHES. Second Memoir. ON THE PROPER CURRENT OF THE FROG. By the same.

IV. ELECTRO-PHYSIOLOGICAL RESEARCHES. Third Memoir. ON INDUCED CONTRACTIONS. By the same.

[From the PHILOSOPHICAL TRANSACTIONS for 1845. Part II. Communicated by *Michael Faraday,* Esq. F.R.S.]

IN the *Medico-Chirurgical Review* for April 1845, we published a somewhat lengthened article on the interesting and important investigations of Professor Matteucci, contained in his *Traité des Phénomenes Electro-physiologiques des Animaux,* as well as in the *Rapport entre le Sens du Courant Electrique et les Contractions Musculaires dues a se Courant,* published jointly by MM. Longet and Matteucci, and noticed in the *Comptes Rendus* for September, 1844.

In that article we announced that the Council of the Royal Society had, on the recommendation of its Committee of Physics, adjudged to Professor Matteucci the Copley Medal, on account of the novelty and importance of his researches. To show his gratitude to the Society for the distinction thus accorded to him, Matteucci communicated, in the three *Memoirs* whose titles stand at the head of this article, some fresh researches on electro-physiological phenomena.

In 1844, the Government of Tuscany appointed Matteucci to deliver, in the University of Pisa, a course of lectures on the physical phenomena of living beings; an interesting subject, for the elucidation of which Matteucci's studies and investigations peculiarly fitted him. These lectures were published in Italy, and have passed through two editions; but they have only recently become known to the English public by the French edition published in the present year, under the direction of the author, who has in it made considerable additions to the matter contained in the second Italian edition.

In these *Leçons,* Matteucci discusses the subjects of the three Memoirs published in the Transactions of the Royal Society, and in the edition now before us he has introduced a notice of all his most recent investigations on Electro-physiology. This of course renders the French edition greatly superior to the editions previously published in Italy.

Professor Matteucci's course consists of twenty lectures, and embraces the following subjects :—

Molecular Attraction ; Capillarity ; Imbibition ; Endosmose ; Absorption
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in animals and vegetables ; *Digestion ; Respiration; Gaseous Endosmose ; Hæmatosis* or sanguification ; *Nutrition ; Animal Heat ; Phosphorescence of organized beings ; Muscular Electrical current ; Electric Fish ; Proper currents of the frog ; Physiological action of Gravity, Light, Heat, and the Electrical current ; Nervous force ; Muscular contraction ; Animal Mechanics; Circulation of the blood; Vocal apparatus; Voice; Hearing; Vision.*

In the first lecture the Professor shows that living beings possess the general properties of all the bodies of nature ; that the physical forces act on these as well as on other natural bodies ; but that organized beings present phenomena termed vital, which, in the present state of our knowledge, cannot be referred to mere physical agencies. During life there is, between the physical and vital forces, a constant struggle, which terminates in the triumph of the former, that is, in death.

Although the study of the influences of physical agents on living beings is a subject of paramount importance in physiology ; and although it can be demonstrated that light, heat, and electricity exercise, in the interior of living beings, the same kinds of physico-chemical actions which they do in inorganic bodies, yet it must be confessed that, at present, it is quite impossible to explain vital phenomena by reference to physical agency only. No one is more impressed with the truth of this fact than Matteucci.

" With the aid of all this knowledge and of these analogies, dare we hope," says Matteucci, " to obtain a complete explication of all the phenomena of living beings ? Alas ! such hope for the present would be vain.

" Open an animal, examine the kidneys and liver, and then ask yourselves by what physical force you can explain how the blood, which is carried to an organ, forms bile and urine ? Can you, by having recourse to chemical affinities, modified as much as you please, and aided by the peculiar structure of organs and even by the actions of contact,—can you, I will not say comprehend, but even obtain a glimpse of, the means by which the various organs affect the separation and transformation of the constituent parts of the blood, in which all the organic elements are mixed, partly suspended, partly dissolved, and of which they have need to repair their continual losses ? What can we say of the functions of the nerves or of generation ?"

Endosmose.—Passing over *molecular attraction, capillarity,* and *imbibition,* we come to that fertile principle *endosmose,* which forms the subject of Matteucci's third lecture, and to which no less than forty-one pages of the *Leçons* are devoted.

We much wish that our space permitted us to transfer the whole of this interesting lecture to our pages, for it abounds in important matter. It is not a mere *resumé* of what is known on the subject, but contains many novel and ingenious views of paramount interest to the physiologist and practical physician.

In the early part of the third lecture Matteucci falls into an error which is very common with continental, and even with some British, writers ; that of ascribing to Dutrochet* the discovery of endosmose.

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* Science has to deplore the recent loss of this eminent philosopher, who died on the 4th February of the present year, in the 70th year of his age.

The credit of this is, however, really due to our distinguished country-man, Mr. Porrett, the present Treasurer of the Chemical Society of London; who, in a letter (dated June 6th, 1816) to Dr. Thomson, the editor of the *Annals of Philosophy*,* describes two " *curious galvanic experiments*," one of which involves the discovery of endosmose. Mr. Porrett is not only the discoverer of the fact just referred to, but he also had the sagacity to suggest its application to the explanation of physiological phenomena. That portion of his paper which relates to the phenomena of endosmose being very short, we feel it our duty, as an act of justice to Mr. Porrett, to reprint it entire, for the benefit of those of our readers, who may not have the time and convenience to refer to the volume which contains it.

" *Exper.* 2.—I took an ounce medicine phial, and with a red-hot rod of iron cut it in a horizontal direction, so as to form the lower part into a small jar. I threw away the upper part and divided the small jar into two equal parts in the direction of its length, so as to make a vertical section of it. The two halves of the jar were then pressed together in their original position, having first inter-posed a piece of moistened bladder. All the parts of the bladder which protruded beyond the outside of the jar were then cut away; and when this was completed, melted sealing-wax was run down the outer edge of the bladder, and thus the two halves of the glass vessel were firmly united. By this means the inside of the glass jar was divided into two cells, by the bladder interposed between them.

" One of these cells having been filled with water, and left for several hours, was found to have retained the water. The bladder, therefore, was not sufficiently porous to allow the water to filtrate through it. The cell filled with water was now positively electrified, with a battery of 80 pairs of $1\frac{1}{4}$ inch double plates, and a few drops of water were put into the empty cell, so as to cover the bottom of it. This small quantity of water was then negatively electrified. The pheno-mena which ensued were exceedingly curious and instructive. Independent of the decomposition of a small part of the water, which of course took place in the usual manner, the principal part of it obeyed the impulse of the voltaic current *from the positive to the negative wire*, first overcoming the resistance occasioned by the compact texture of the bladder, so as in about half an hour to have brought the water in both cells to the same level, and afterwards overcoming the additional resistance occasioned by the gravitation of the water, by continuing to convey that fluid in to the negative cell, until its surface in that cell was upwards of $\frac{1}{4}$ of an inch higher than in the positive cell. A much greater difference of level might doubtless be obtained by operating with a larger apparatus, and for a longer time; but the results are perfectly conclusive when the experiment is performed on the small scale in which I tried it.

"I have repeated the above experiment several times, and invariably found the liquid, whatever it was, descend on the side positively electrified, and ascend on that negatively electrified, chemical changes at the same time going on, as in the celebrated transfer experiments of Sir H. Davy; but those experiments could not show the mechanical action of the voltaic current, consequently only the chemical action was observed in them. To render the mechanical action evident, it is an indispensable condition that there should be interposed between the posi-tively and negatively electrified liquids a body which, although porous, is yet sufficiently compact to·prevent filtration taking place in common circumstances. Bladder answers this condition. I do not think, however, that it does so as well as filtering-paper that has been prepared in the following manner, suggested to me by my very ingenious friend Mr. Wilson, of Guy's Hospital:—Spread the white of an egg thinly upon filtering-paper; then immerse the paper into boiling

water, so as to coagulate the albumen; it is then well adapted for these experiments. Thick paper of a very compact texture would probably do without this preparation ; but I cannot state this positively, not having tried it.

"I think that by the above experiment I have demonstrated the existence of a power not before noticed in the voltaic current, namely, that of conveying fluids through minute pores not otherwise pervious to them, and overcoming the force of gravity.

"Is not this electro-filtration, jointly with electro-chemical action, in constant operation in the minute vessels and pores of the animal system ?

"I wish that some person well versed in the sciences of anatomy, chemistry, and electricity, would answer this question. I am not qualified to attempt its solution, being a stranger to the first-mentioned science, and possessing but a moderate knowledge of the other two ; and it appears to me that only a proficient in all should venture to propose any new physiological opinions, but I cannot help thinking that an affirmative answer to the above question is capable of a good defence.

To those who may be inclined to repeat the preceding experiment, it may be useful to mention that, by letting fall from a dropping tube a little sulphuric acid into the cells of the battery occasionally, its action is prolonged, without the trouble of renewing the liquid in the cells, or the inconvenience of disturbing the whole arrangement, the partial action of this dense acid on the plates is prevented by stirring the liquid afterwards with a little stick."—P. 76.

After this *réclamation* we proceed with our notice of the *Leçons.* The simple fundamental fact relative to endosmose is thus stated by Matteucci.

"Here is a glass tube, whose lower extremity is expanded into the form of a funnel, and is closed by a piece of bladder. This instrument is called an *endosmometer.* If we pour into it an aqueous solution of either gum or sugar and then plunge the closed extremity into water, we shall observe that, notwithstanding the excess of pressure of the column of liquid, the water continually passes into the tube by filtration through the membrane. The liquid within the tube thus becomes elevated to a certain extent and may even flow over at the upper extremity : at the same time, however, a certain quantity of mucilaginous or saccharine liquid escapes from the tube through the bladder and mixes with the water ; but the quantity is necessarily less than that of the water which passed through the membrane from without inwards. Dutrochet has applied the term *endosmose* to the first of these phenomena (that is to the passage of the fluid from without inwards), and that of *exosmose* to the passage of the fluid from within outwards.

"Membranes produce endosmose until they begin to putrefy, when the phenomenon ceases, and the liquid, which had been elevated in the tube, falls and filters through the membrane."

The phenomena of endosmose are not confined to membranes, nor even to organized substances. Plates of slate or of baked clay produce, though in a weaker degree, the same phenomena.

The nature of the liquid has a considerable influence on the process.

"It is a curious fact," says Matteucci, "that the slightest trace of sulphuretted hydrogen modifies the production of this phenomenon, even with the most active liquids : whereas other acids, as the hydrochloric and nitric, have no effect on it.

"When compared with water, all animal liquids produce endosmose with much energy, except those contained in the large intestine. These probably become exceptions on account of the sulphuretted hydrogen which they contain."

Matteucci then briefly notices Dutrochet's experiments on the velocity of endosmose with different fluids, and mentions the curious fact, that cer-

tain acids, when mixed with water, change the direction of the current. After some remarks on the force of the endosmotic current and the insufficiency of theory to account for the phenomenon, Matteucci observes—

" What we have now stated is sufficient to convince you that this phenomenon is perhaps the most important of physical facts, with respect to its applications to the functions of living bodies.

" Microscopic observation has now put beyond a doubt that in all tissues, vegetable or animal, and in those liquids which are produced by the alteration of organised and living beings, there is constantly found, at a certain epoch of their formation, microscopic corpuscles, which have a peculiar and characteristic form, and are called *elementary or primitive cells*. These bodies consist of an excessively fine membrane, have a spherical form, and enclose a liquid. On the inner side of the membrane is a small organized body, called the *nucleus* or *cytoblast*. The cells float at first in a liquid which Schwann has named *cytoblastema*, and ultimately become included in, and almost confounded with it, when this liquid becomes more or less dense. In different tissues, the elementary cells are more or less closely approximated to each other; the *cytoblastema*, or intercellular substance, is invariably the bond of union between the cells. Hereafter we may perhaps return to this important subject, which we have now only glanced at, in order to render more evident the importance of the phenomenon of endosmose. The life of the elementary cells certainly forms the part which is the most essential to the development and preservation of the tissues of living bodies ; and, since these cells are found under conditions favourable to endosmose, we can assign no reason why it should not take place. A vessel filled with a liquid, and placed in the midst of another liquid, may act on the outer one, receive the surrounding liquor, and reject the one it had previously contained, by operating in a manner analogous to endosmose.

" We must, however, confess that hitherto very few investigations have been undertaken with the view of making such applications of the phenomenon of endosmose to physiology as it appears to be susceptible of. To do this it was necessary to vary the liquids between which endosmose takes place, and to select the membranes, so that we might always keep as close as possible to the conditions under which the analogies between the phenomenon and those which take place in the interior of living bodies have been observed. This I undertook to effect, in conjunction with Professor Cima ; and I shall now bring before you the result of our researches. The membranes which we submitted to experiment may be divided into three classes : the first includes the skin of the frog, the torpedo and the eel ; the second, the stomach of the lamb, the cat and the dog, and the gizzard of the fowl ; and the third, the bladder of the ox and of the pig."

Matteucci then proceeds to explain the apparatus employed, and the conditions under which the experiments were made, to determine the influence which the membranes of these three classes exercise on endosmose.

One of the most remarkable facts discovered by MM. Matteucci and Cima, is the marked influence exercised on the phenomenon of endosmose by the position of the membrane interposed between the two liquids. Thus, in the case of the fresh mucous membrane of the bladder of the ox, deprived of the muscular coat, this influence was very manifest.

" When this membrane was employed, and a solution of sugar introduced into the interior of the two endosmometers, the height at which the liquids arrived in the tubes was, when the internal surface of the membrane was in contact with the saccharine liquid, 80 and even 113 millimetres in the usual space of two hours ; but it was only 63 or 72 millimetres when the position of the membrane was reversed. The current of endosmose then is promoted in this instance from the external to the

internal surface of the membrane. The contrary effect is obtained with the solution of gum arabic. The elevation is 18 and sometimes only 7 millimetres, when the internal surface is turned towards the interior of the instrument, when it contains the gum solution; whereas, when the membrane is arranged the reverse way, the elevation is 52 millimetres, or, in some cases, 20 millimetres."

The general conclusions drawn from the various experiments made by MM. Matteucci and Cima on this subject are thus stated by Matteucci:

" 1st. The membrane interposed between the two liquids, in the phenomenon of endosmose, has a very active share in the intensity of the endosmometric currents, as well as in its direction.

" 2nd. There is in general, for each membrane, a certain position in which endosmose is the most intense; and the cases are very rare in which, with fresh membrane, endosmose takes place equally, whatever be the position of the membrane to the two liquids.

" 3rd. The direction which is most favourable to endosmose through skins is, usually, from the internal surface to the external, with the exception of the skin of the frog, in which endosmose, between water and alcohol, is promoted from the external to the internal surface.

" 4thly. The direction favourable to endosmose through stomachs and bladders varies much more than with skins, according to the different liquids.

" 5thly. The phenomenon of endosmose is closely allied to the physiological condition of the membranes.

" 6thly. With membranes dried or altered by putrefaction, either we do not observe the usual difference belonging to the position of their surfaces, or endosmose no longer takes place."

The following extract forms the conclusion of the third lecture of Matteucci's very interesting work:

" It is by endosmose that physiologists now explain the nutrition of the ovules in the oviducts of mammalia, and how the sacs which contain the sperm of the cephalopodous molluscs open immediately they are brought into contact with water.

" A cell is the elementary organ of all animal and vegetable tissues, and cell-life involves an act of endosmose : this shows how much the phenomenon of endosmose is still in want of being more completely studied, in order that we may be enabled to make of it all the applications of which it is susceptible. I cannot conclude this lecture without referring to the recent experiments of Poiseuille, made with the view of explaining by endosmose the purgative action of certain substances. He found that there was endosmose through animal tissues from the serum to Seidlitz water, and to the solutions of sulphate of soda and common salt. Now this is precisely what happens when we use these medicines internally. The rejected excrements contain an abundant and unusual quantity of albumen : in this case we must admit that endosmose takes place through the capillary vessels of the intestine, from the serum of the blood to the saline solution introduced into the alimentary canal.

" But, to remove all doubt of the propriety of Poiseuille's applications of this fact, it was necessary to demonstrate that endosmose takes place when one of the liquids is in motion, and is continually renewed.

" This has been recently done by Dr. Bacchetti, who has shown that the rapidity of endosmose is considerably augmented when one of the liquids was continually renewed. This result, moreover, is in accordance with the principles of the theory of endosmose : the exchange of liquids constantly effected through the membrane, leads to the suspension of the action of endosmose; or, in other words, the conditions for the production of the phenomenon are so much the

better preserved, as the liquids remain longer without mixing. Poiseuille has also shown that endosmose ceases to take place in a membrane after a certain time of action, but that we may restore to the membrane this property by submitting it to the action of other liquids. The most remarkable fact discovered by Poiseuille is that of the influence exercised by hydrochlorate of morphia. This body added to saline solutions weakens very considerably the endosmose from the serum to the solution; and ultimately changes the direction of the current. This fact has been confirmed by Dr. Bacchetti. How can we make an entire abstraction of this fact in the explanation of the action of morphia and the preparations of opium in diarrhœa, and of the constipation which they produce?"

The Muscular Current.—In the paper on the muscular current, presented by Matteucci to the Royal Society and printed in their Transactions, the results obtained from his different experiments are thus summed up.

" In the first place, the intensity and duration of the muscular current are independent of the nature of the gas which envelops the muscular pile. Secondly, this current, as I have already shown from the commencement of my researches, is altogether independent of the cerebro-spinal nervous system, and the circumstances which exercise a marked influence upon its intensity are respiration and the sanguineous circulation. Thirdly, those poisons which seem to act directly upon the nervous system, have no influence upon the muscular current; among these I would mention hydrocyanic acid, morphine and strychnine. Fourthly, sulphuretted hydrogen has a marked influence in diminishing the intensity of the muscular current. Fifthly, the intensity of the muscular current varies according to the temperature in which the frogs have lived a certain time; it is needless to observe that this result is not discoverable except in those animals which, like the frog, necessarily take their temperature from that of the medium in which they live. Sixthly, the intensity of the muscular current increases in proportion to the rank the animals occupy in the scale of beings, while the duration of this current, after the death of the animal, is in an exactly inverse ratio.

" Comparing these conclusions with those generally admitted by physiologists, and drawn from a great number of experiments on the vital properties of muscles, it is impossible not to perceive that the property of the muscles, immediately connected with the muscular current, is that which Haller calls irritability, and which at the present day, I believe physiologists designate by the name of organic contractility, or simply contractility."

Our readers will not fail to perceive that the conclusions drawn by Matteucci from his experiments are opposed to the views of Dr. Marshall Hall. The Italian Professor regards the irritability of muscular fibre as inherent; whereas Dr. Hall considers it as derived from what he calls the true spinal system.

" With regard to the manner of representing the origin of the muscular current," says Matteucci, " I find, in my present experiments, a confirmation of the opinion I set forth in my preceding ones. The chemical action which goes on in the nutrition of the muscle, principally that which takes place in the contact of the arterial blood with the muscular fibre, is in all probability the source of this electricity in the muscles."

Some of the recent investigations of Liebig have reference to the origin of the muscular current. The celebrated Giessen Professor has at last succeeded in demonstrating the existence of free lactic and phosphoric acids in the muscles of animals. He thinks that his results " explain the quick re-action of the muscles," and he adds that, now that " we know

that there exists, in so large a portion of the body of animals, an acid liquor, which is only separated from an alkaline fluid (the blood and the lymph) by very thin membranes, we may, I think, explain several electrical phenomena observed by Matteucci and other physiologists upon the bodies of dead (and living) animals." (See *Chemical Gazette*, Feb. 1, and Feb. 15, 1847; also *Comptes Rendus*, Jan. 18th, 1847.)

The Proper Current of the Frog.—In our review of Matteucci's *Traité des Phénomenes Electro-physiologiques* (*Medico-Chirurgical Review* for April, 1845), we protested against Matteucci's assumption that the frog had any peculiar electric current; and we did so because it appeared to us that the assumption was in opposition to every thing then known respecting the organization and physiological relations of animals; and we observed that we could not " for a moment admit the probability of the frog possessing a peculiar electric current, unendowed as this animal is with any peculiar organs or electric apparatus." And we further stated our confident belief that, " whatever currents may be detected in the frog, the same will be found to exist, in some degree of intensity, in other animals."

The accuracy of our view is now fully established by the more recent investigations of Matteucci himself, detailed in his second Memoir, subsequently published in the *Philosophical Transactions.*

From the additional experiments, referred to in the Memoir just quoted, made with the view of clearing up certain points which had been left in an unsettled state, in the *Traité*, Matteucci concludes,

"That the proper and the muscular current are in general subjected to the same laws, and that both these currents vary in the same sense, under the same circumstances."

Feeling the importance of solving the question why the proper current should belong exclusively to the frog, Matteucci next directed his attention to this point, and arrived at the following

" Generalization of the fact of the proper current of the frog; the current is directed within the muscle from the tendon to the superficies.

" It remained for me to extend this fact to its operation upon the muscles of warm-blooded animals, and the experiments accorded in such a manner as to leave no possible doubt."

His experiments were made on fowls, pigeons, rabbits, and dogs; and their results were such as to establish the correctness of the position we took up in the review before quoted; and we therefore claim for ourselves the credit, small though it be, of having denied the speciality of the proper current in the frog, and of having asserted our belief of its universality in animals. In his *Leçons*, Matteucci thus clearly states the conclusions at which he has recently arrived.

" Recently, by studying more attentively the proper current, I have satisfied myself that it is a phenomenon which appertains to all animals. Here is the enunciation of the fact; in every muscle endowed with life in which the tendinous extremities are not equally disposed, there exists a current directed from the tendon to the muscle, in the interior of the muscle. All animals have muscles in which one tendinous extremity is narrower than the other; which at one part ms a kind of cord, and at the other becomes broader and ribbon-like. In the

frog and many other animals, the gastrocnemius has this character: in birds, the pectoral muscle presents this arrangement. When we form a pile with these muscles, we find that a current circulates in the muscle, from the tendinous extremity to the muscular surface.

"In arranging this pile, we must carefully avoid exposing the internal part of the muscle, and we must especially place one element in contact with another, in such a manner that the tendinous extremity touches the surface of the muscle, and never the interior; indeed, the latter ought to be as far as possible from the tendon. Without this precaution, there will be, in the circuit, the muscular current, which, being directed from the interior to the surface, would have a direction precisely the reverse of that of the proper current. Having thus ascertained the conditions on which the proper current depends, I think that I may generalize its origin and connect it with the muscular current. This community of origin is principally demonstrated by the identity of action which the different circumstances that modify the organism and the life of animals exercise upon the muscular current. In fact, whether the current be muscular or proper, the action exercised on it by heat, narcotics, sulphuretted hydrogen, and the degree of integrity of the nervous system is the same.

"Anatomists have lately demonstrated that the elementary muscular fibres are immediately continuous with the tendinous fibres, and that the sarcolemma which invests the muscle, ceases abruptly where the tendon begins. We may, therefore, with some probability, consider the tendon as being in the same electric condition as the interior of the muscle ; and, therefore, when we form by means of a good conductor, a circuit or communication between the tendon and the sarcolemma, we put into circulation a portion of the muscular current."

On Induced Contractions.—In our review, before referred to, of Matteucci's *Traité*, we noticed the *physiological phenomenon produced by a muscle in contracting*, and proposed to call it electric sympathy ; Matteucci now terms it *induced contraction*, or *muscular induction*. The subject, though important to the physiologist, is very obscure. In his later memoir on it, inserted in the *Philosophical Transactions*, Matteucci first examines the question whether electricity is evolved during the contraction of a muscle : and concludes that it is not. After examining various physical theories of induced contraction, he concludes by admitting that "we cannot give a satisfactory explanation of the phenomenon of induced contraction by recurring to electricity or any other known causes," and infers that "induced contraction is only a new phenomenon of nervous force."

We must now conclude our account of Matteucci's Lectures and Memoirs. In noticing the former we have been obliged to limit our extracts and observations to a few only of the subjects treated of. But, as we have enumerated the various topics which the author successively considers, our readers will be able to form a fair idea of the extent and scope of this most interesting and instructive work ; and we trust that the extracts which we have made from it will justify our opinion of its highly meritorious character. It is alike valuable and interesting to the general reader and the professional man,—to the natural historian and natural philosopher,—to the physiologist and the practical physician.

With the exception of Magendie's Lectures (published in Paris in 1842 in 4 volumes 8vo.), we are unacquainted with any other modern work, besides that of Matteucci, which is expressly devoted to the physical phenomena of living beings, yet the subject is of growing importance, and loudly calls for further investigation. One reason why its literature is so

scanty is, perhaps, the paucity of persons who combine, in one individual, a sufficient acquaintance with both physical and physiological sciences, to qualify him for the investigation; physics and physiology being usually regarded as entirely different branches of study. In the case of Magendie we have an instance of a physiologist successfully pursuing physical researches with the view of applying physical agencies to the explanation of physiological phenomena. Matteucci, on the other hand, is a natural philosopher, a professor of the physical sciences, who has extended his investigations to organized bodies, in order to ascertain whether many of the phenomena presented by living beings, and called vital, may not be, in reality, due to physical influences. The subject, therefore, has been regarded by those two eminent philosophers from opposite points of view; and the work of the one is consequently not a substitute for that of the other.

Some of our readers may perhaps be glad to learn that an English translation of this work, made under the superintendence of, and annotated by, Dr. Pereira, has been announced, by Messrs. Longman and Co., for immediate publication.

I. A Manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By *T. Wharton Jones*, F.R.S. Small 8vo. pp. 570. Churchill, 1847.

II. On Cataract, Artificial Pupil, and Strabismus. By *F. A. Brett*, M.D., F.R.C.S. 8vo. pp. 89. Churchill, 1847.

III. Annales d'Oculistique. Tom. XVI. XVII. 1846–7.

IV. Report on the Progress of Ophthalmic Surgery for 1847, with Original Cases and Illustrations. By *W. R. Wilde*, M.R.I.A.

V. Papers on Inflammations of the Eye. By *A. Jacob*, M.D. F.R.C.S.I. (Dublin Medical Press, 1846.)

We had hoped to have had M. Desmarres' work upon ophthalmic medicine in our hands before this; but the publications above cited will, in the mean time, furnish us with some interesting information to place before our readers. Mr. Jones' "Manual" is a very elaborate compilation, and will, in this age of condensing, epitomising, and manualizing, doubtless occupy the foremost place. To our own taste it is, however, needlessly extended in its earlier portions. The directions for examining the eye are frequently too anticipatory of the descriptions of its diseases, and are minuter than necessary for those, as we hope all do, who avail themselves of opportunities of practically studying this important subject, which, perhaps less than any other, is to be managed by books. Here the student has the opportunity, which so few other perverted conditions of the economy furnish him with, of *seeing* disease at its onset, during its various stages of pro-

gress, and in its different effects. This facility of inspection has, however, been disadvantageous in one respect, that of encouraging a disposition to minute and fanciful division and subdivision of the various morbid appearances, which, conjoined with the jargonic vocabulary that has been invented for the purpose of indicating these, has well nigh converted into a difficult and repulsive study, that which is really in its natural simplicity very easy, and should be attractive. Mr. Jones has farther unnecessarily enlarged his book by a long description of the various phenomena of inflammation in general. Ably as we allow this is written, it is surely time a stop were put to the practice of writers upon special subjects taking it for granted that their readers are unacquainted with the most general principles of disease, and occupying space which should be otherwise filled, or better still spared altogether, with dissertations which find their proper place elsewhere. Among Mr. Jones' directions for examining the eye, that applicable to children seems to us a useful one.

"For the examination of the eyes in children, especially when affected with intolerance of light and blepharopasmus, considerable management is required, and even some degree of gentle force. The surgeon is to seat himself on a chair with a towel, folded long-ways, laid across his knees. On another chair, on the surgeon's left hand, and a little in front of him, the nurse, with the child, sits in such a way that when she lays the child across her lap, its head may be received on the towel, and between the knees of the surgeon, and thus held steadily. The nurse now confines the arms and hands of the child, whilst the surgeon, having dried the eyelids with a soft linen cloth, proceeds to separate them by applying the point of the forefinger of one hand to the border of the upper eyelid, and the point of the thumb of the other hand to the border of the lower, and then sliding them against the eyeball, but without pressing on it, towards their respective orbital edges. This mode of proceeding obviates the eversion of the eyelids, which is so apt to take place under these circumstances. The eyelids being thus opened, they are readily kept so during the examination, by the command, which the points of the finger and thumb, resting against the edges of the orbit, have of their borders. By this means the whole front of the eyeball is exposed, but it often happens that, to avoid the light, the eye is spasmodically turned up, so that the cornea is in a great measure concealed. By waiting a few seconds, however, enough of it will in general come into view to enable the surgeon to judge of the state in which the eye is. Having completed this portion of the exploration, there is not much difficulty in so everting the eyelids as to ascertain the state of the palpebral conjunctiva."—P. 14.

We may commence with some account of

The Ophthalmiæ.

These Mr. Jones divides into four orders. O. Externa, Interna anterior, Interna posterior, and Panophthalmitis. The first of these is subdivided into Conjunctivitis, Sclerotitis, and Corneitis ; the second, into Aquo-capsulitis, Iritis, and Crystallino-capsulitis anterior ; the third, into Choroiditis, Retinitis, Vitreo-capsulitis, and Crystallino-capsulitis posterior ; while the fourth (inflammation of the whole eye) is fortunate in constituting but the one order and genus. That inflammation may affect any of these textures is certain, but the practice among Ophthalmologists of describing its agency as so many isolated or separate diseases, has long seemed to us a most faulty one. This, joined to the innumerable modifications induced by diathesis detailed by other observers, renders the study of the subject

unnecessarily complex, and often directs too exclusive attention to some particular structure.   We are much pleased in finding so experienced an observer as Dr. Jacob, in the papers quoted at the head of this article, frequently inculcating these views.   Speaking of Iritis, he objects to the term, inasmuch as other textures are as much affected, especially the retina, as is the iris, and observes :—

"The attempt to insulate or confine the inflammation of the eye to particular structures, under the names of iritis, choroiditis, retinitis, corneitis, sclerotitis, and aqua-capsulitis, hyaloiditis, &c., has not proved serviceable in practice.   It looks very methodical, it appears plausible in books and lectures, but when we come to test the matter by observation, we find many of these apparent distinctions vanish, and discover it is only a progressive inflammation of the whole organ, more conspicuous at the commencement in some particular part."

We are likewise disposed to agree with Dr. Jacob in his opinion that simple, uncomplicated inflammation of the eye is of more frequent comparative occurrence among the lower orders than that dependant on scrofula, rheumatism, arthritis, &c., than is generally believed.   Such is however not the general opinion, and certainly not that of our German brethren, who seem to revel in their multiplied subdivisions.   Thus M. Cunier, in a report in the " Annales d'Oculistique," upon the diseases of the Eye observed in the province of Brabant, not content with the ordinary designations of scrofulous, catarrhal, rheumatic, syphilitic, &c. ophthalmia, combines these in every variety, so that we have the scrofuloso-catarrhal, &c., *ad infinitum ;* and he is much surprised that writers so experienced as Lawrence and Mackenzie, in noting the catarrho-rheumatismal ophthalmias, should have neglected indicating the rheumato-catarrhal. Although it is certain that, under the specific influence of these diseases, certain structures of the eye are occasionally more especially influenced than others, these are not so exclusively, nor to any thing like the extent usually believed ; and, moreover, the existence of any such predisposition is too hastily assumed in many cases.   Still we believe that the designation of inflammations of the eye under some general appellation, derived from constitutional peculiarities, is often a very useful procedure, providing the attempt be not made to localize such classes in some one or other of the structures of the eye under the appellations corneitis, conjunctivitis, iritis, &c.

Scrofulous Ophthalmia.—This, Mr. Jones describes as essentially a species of corneitis—with what justice let those judge who are familiar with its various symptoms referable to the implication of other structures.   It seems to be very prevalent at Brussels, for of 641 cases of eye-disease, reported by M. Cunier, 107 consisted of scrofulous ophthalmia ; in 42 others the scrofulous element existed, although not predominantly, while 107 cases exhibited the consequences of prior attacks—giving a total of 256.   In 103 cases, in which the ages were noted, these were less than 12 in 96, and more only in 17.   Of 1782 cases of eye-disease throughout Brabant, 640 were examples of scrofulous ophthalmia or its effects.   We believe the writers upon disease of the eye in all countries bear witness to a nearly similar preponderance.   M. Cunier had frequent opportunities of tracing the *hereditary* influence in the production of the disease, in most

cases the parents having already suffered from this or other scrofulous diseases, or other branches of the family continuing to do so. He agrees with Lugol, that the *endemic* prevalence of the disease is due rather to the life of wretched privation, mixed with intemperance, the families in which it prevails lead, than to the effect of vitiated air and crowded localities; and laborious enquiries have convinced him, that the majority of the *occasional causes* of authors have no necessary effect, scrofula only showing itself under their influence when individual predisposition exists. Such causes, however, are very injurious to health when persistent, and no population exposed to them can rear healthy offspring.

M. Cunier, after Sichel, describes two forms of the disease; the one irritable, erethitic; the other indolent, phlegmatic, or torpid; both manifesting that predominance of the lymphatic system and irregularity of the digestive functions, so characteristic of scrofula. There were about 54 per cent. irritable, and 46 torpid, in the towns; and 33 irritable, and 67 torpid, in the rural districts of Brabant.

Mr. Jones' directions for the *treatment* of this disease are judicious. He commences with an emetic and purge, keeping up some action of the skin, if feverishness is present, by means of antimonial wine, and afterwards regulating the condition of the digestive organs by hydr. c̄ creta and hyoscyamus, with occasional doses of calomel and rhubarb or scammony. This accomplished and fever subdued, a grain or two of quinine ter. will, in most cases, seem to exert almost a specific effect, while in others iron, sulphuric acid, or rhubarb and soda, will be found useful. He recommends the occasional application of a few leeches around the eye, a measure from which, in these cases, we have seldom derived benefit, while from the practice of counter-irritation behind the ears, highly approved by him, we have seen the best results follow. As local applications he employs a belladonna lotion, or steaming the eyes with vapour impregnated with belladonna, as effectual means of relieving the intolerance of light. No mention is made of the painting the eyelid and eyebrow with iodine for this purpose—a practice frequently very successful. Due attention to the purity of the air, condition of the clothing, diet, and other hygienic circumstances, is all-important. Where the disease proves very obstinate, evacuation of the aqueous humour, repeated leechings and blisterings, a mercurial course, in conjunction with the quinine, and the continuous dilatation of the pupil by belladonna, are indicated.

Rheumatic Ophthalmia.—Dr. Cunier represents this as of extremely frequent occurrence among the working-classes of Brussels. Scrofula is the most ordinary combination, and catarrhal ophthalmia a very frequent one. Sudden atmospheric changes, ill-ventilated, heated workshops, and the sudden change of temperature in passing from these to the air, and travelling in exposed carriages on railways, are among the causes assigned for the production of the disease.

Dr. Jacob well observes, that the information respecting rheumatic inflammation of the eye, to be found in ophthalmic writers, is anything but precise.

"It seems to be assumed that rheumatic inflammation of the eye has its seat more especially in the sclerotic coat, apparently from a belief that rheumatism

generally affects the fibrous membranes of which the sclerotic is one. It remains, however, to be proved that, in this disease, the ligaments and tendons about joints, or the fibrous apparatus of other organs, are the parts first attacked, or indeed those attacked at all; except in consequence of their connexion with the serous, synovial, or muscular structures engaged in the disease. That the sclerotic is not more the seat of this disease than the other textures of the eye, I am convinced, and the sooner the notion of its being so is abandoned the better; because it has the effect of directing the practitioner's attention from the more important consideration, that the whole of the organ is engaged, and the parts essential to vision are in great danger."—*Press.* xvi., p. 193.

This writer also comments on the insufficiency of the diagnostic signs first attempted to be laid down with precision by Wardrop. He does not deny that such are present in many or most cases of rheumatic ophthalmia, but they are absent in others, and may exist quite independently of the rheumatic diathesis. The formation of the zone round the cornea by the minute subdivision of distinct ramifications, is found in simple as well as rheumatic ophthalmia, although often rendered indistinct by co-existent conjunctival vascularity. This zone, in acute inflammation occurring in young persons, is of a bright pink, but in older persons, or where the disease has long existed, so that the veins have become enlarged as well as the arteries, this may be changed into the brick-red, or yellowish-red, without necessarily indicating rheumatic disposition. The aspect of an eye long inflamed and in old age, is very different from that of one acutely inflamed in early life. Although the vascularity is not alone characteristic, it is generally more considerable, both conjunctival and sclerotic, than in idiopathic or simple inflammation of the iris. The cloudiness of the cornea also, described by Mr. Wardrop, is sometimes seen in simple, and is characteristic of gonorrhœal iritis; nor are the changes which occur in the iris peculiar. The agonizing, dull, remittent, orbital pain, so well described by Wardrop, is not always present, nor exclusively indicative of this form when it is.

" Although, as has been already stated, the specific nature of the inflammation cannot be recognised with certainty from the changes of structure or the symptoms, it may be apprehended from the severity of the attack, the greater degree of pain, and its extension to surrounding parts, as well as from intolerance of light and general constitutional disturbance. Neither these peculiarities nor any other modification of symptoms will, however, in my opinion, justify the practitioner in pronouncing positively that the disease is true rheumatic inflammation of the eye, unless there be unequivocal proof of the previous or present existence of rheumatic constitution or diathesis, as indicated by inflammation of the joints, with the peculiar accompanying fever, or that disturbance of the system called acute rheumatism; or unless there be at least transient shifting pains of joints or muscles, with brief febrile paroxysms, perspirations, lithic deposits, in the urine, and general ill health. It should not be assumed that inflammation of the eye is of true rheumatic nature, because the patient may have occasionally experienced temporary pains of some of the joints or muscles. * * * * To call an inflammation of the eye rheumatic, because it appears to be situated in the fibrous membrane or sclerotic, is nothing more than an intimation that the disease is to be considered of this nature merely because it attacks that structure, and is obviously made from an assumption, unsupported by fact, that these textures are peculiarly subject to such disease. Rheumatic ophthalmia, it is said, ' frequently occurs in individuals who have never suffered from rheumatism in

other parts of the body.' If so, the disease so called is not rheumatic. Rheumatic inflammation of the eye may perhaps sometimes, but not frequently, occur without inflammation of joints or other organs, but not without constitutional rheumatic disease. If that be not present, the local inflammation is destitute of the specific character."—P. 196.

Treatment.—Mr. Jones describes rheumatic inflammation of the eye under two separate heads, those of sclerotitis and rheumatic iritis. The former, he states, may, in its incipient stages, be sometimes checked by a dose of calomel and Dover's powder, with a pediluvium at night and an aperient in the morning, following these up with small doses of nitre. If this is not successful, bleeding as also in rheumatic iritis, must be resorted to. In ordinary inflammation of the iris and other structures of the eye, Dr. Jacob is an advocate for more cautious depletion than that usually employed, believing that the most destructive effects often occur after comparatively slight inflammation, and in the less robust subjects. "After many years' experience, I find myself treating inflammation of the eye without much bleeding, and I do not think my success is less than that of practitioners who resort principally to the lancet and leeches." Bleeding is useful only at the very commencement, and should not be resorted to for the removal of the mere redness of a later period. If in ordinary inflammation this practitioner considers a modification of the usual practice desirable, he does so still more in reference to those cases connected with the rheumatic diathesis, in which depletion should, save in the robust and plethoric, be only local. Both Mr. Jones and Mr. Jacob recommend repeated doses of Dover's powder, and diaphoretic doses of tartar-emetic, occasional purgatives, as sulphate of magnesia with the carbonate, calomel and colocynth, &c. In severe cases *mercury* is required and should be combined with antimony and opium ; but the same reliance is not to be placed upon this mineral as in the simple or syphilitic form of the disease. Upon the utility of *colchicum* much discrepancy of opinion prevails, and Dr. Jacob speaks somewhat doubtingly upon the subject. From *cinchona*, in debility and decayed health caused by active treatment, and in examples of frequent relapse, like most practitioners, he has derived great advantage. In those of chronic and refractory cases, too, the *iodide of potassium* is given with bark, mercury, &c., as the case may be, with benefit. The ammoniated tincture of *guaiacum*, given in milk, is another useful remedy. Belladonna should be used both as a fomentation (ʒ j. Ext. ad ℔j. Dec. Papav.) for the relief of pain, and as a means of maintaining the pupil dilated. Blisters are often beneficial; and, in the later stages, the *vinum opii* dropped in the eye, affords much relief where there is a scalding pain, intolerance of light, and lachrymation.

Gonorrhœal Ophthalmia.—Mr. Jones enumerates only one cause as capable of producing this destructive disease, viz. inoculation with gonorrhœal matter ; but we think M. Cunier's views are more correct. He classes the patients who offered themselves to his notice into several groups. 1. instances of inoculation of the gonorrhœal matter, either from the urethra of the individual, or that of another person. 2. Those in whom it arose from the sympathy prevailing between the urethral or vaginal

mucous membrane and the conjunctiva—structures very analogous in structure.

"It is a well-known fact," says M. Cunier, "that persons who habitually give themselves up to venereal excesses have the edges of their eyelids red and tumid, the conjunctivæ injected, the eyes themselves sensitive and weeping upon the least excitement. This is especially the case in scrofulous persons and in leucorrhœal women. An increase of leucorrhœa, or an acute gonorrhœa is always accompanied in such with a degree of lippitudo. If it so happen that they are subjected to any cause which under other circumstances would have induced a simple ophthalmia, they will have a true ocular blenorrhœa, though not of a venereal nature."

3. In these, a sudden and almost total suppression of the urethral discharge took place—a metastasis. M. Cunier believes examples of metastasis to be extremely rare, and has indeed never met with an absolute suppression. "What has been usually termed gonorrhœal ophthalmia by metastasis, appears to be but a sudden exaggeration of the sympathetic affection of the conjunctiva, and this to a degree sufficient for inducing a revulsion, capable of producing a quasi-cessation of the original flux, which may become as intense as ever when the ocular inflammation has diminished." In the same way, a violent purging may temporarily diminish the ocular or genital flux. In support of this opinion may be adduced the cases of Fischer and Ribes, in which the ocular and genital fluxes alternated in severity. So too, in a case of ophthalmia induced by inoculation for pannus, which suddenly acquired intensity, the urethral discharge became notably diminished

4. It is familiarly known that the disease may be communicated by bringing the matter from a diseased eye in contact with a sound one. 5. And among the cases noted were some in which the disease had been conveyed to certain individuals shut up in a confined space with one suffering under it, and that by *miasmatic* agency only.

Professor Hairion of Louvain, in an elaborate essay on this disease, recently published in the "Annales," announced as an invariable pathognomic sign of its existence, the presence of a small, rounded or oval, subcutaneous, painful tumour, seated just anterior to the ear of the affected side, and produced by an enlargement of a lymphatic gland. M. Sichel having, therefore, turned his attention to the subject, likewise observed the "*pre-auricular bubo*" in many cases; but, alas! for the hasty generalization of his *confrere*, he likewise discovered it in other cases of disease of the eye, partaking in no-wise of a venereal character, it being in fact but one of the manifestations of a scrofulous disposition.

We are glad to find that Mr. Jones countenances the early employment of strong local irritants to the eye in this destructive class of diseases. The profuse venæsections, once so exclusively depended upon and still resorted to by some to the neglect of the nitrate of silver in substance or in ointment, have lost many an eye which might have been saved.

We had intended considering the various ophthalmiæ *seriatim*, but want of space compels us to limit our further notice to *Infantile Purulent Ophthalmia.* This disease is of very frequent occurrence at Brussels, a fact which Dr. Cunier endeavours to account for by the great prevalence of leucorrhœa amongst the lower ranks of females of that city. He states

the results of all the researches he has made upon the subject, confirm
the conclusion of Professor Cederschjoeld, of Stockholm, that when the
head is long passing through the passages of a leucorrhœal woman, the
escape of the child from this ophthalmia is the exception. This opinion
of the frequent agency of leucorrhœa is held, we believe, by most ob-
servers; but we altogether doubt its correctness, not only on the ground
stated by MM. Vidal and Velpeau, that the child enters the world with
its eyes closed and with the eyelids folded over each other; but because
the affection would be immeasurably more common than it is, were a cause
of such frequent and, in large towns, almost constant existence competent
to its production. M. Cunier, indeed, recognises other causes, and thus
distributes them in 218 cases; 41 were attributed to the ordinary causes
of catarrh; 15 to exposure to light, accidents, or want of cleanliness;
18 to the contact of the eyes with gonorrhœal matter; and 144 to their
contact with leucorrhœal discharge. Of 113 cases, the disease mani-
fested itself in 19 on the third day; in 35 on the fourth; in 29 on
the fifth, and in 20 on the sixth. Founded upon his views of the leu-
corrhœal origin of the ophthalmia, M. Cunier recommends that the eyes
of all new-born infants be washed directly after birth with water. To this
we see no objection, providing this contain no soap, although we feel
convinced it is a nugatory practice, as it is conceivable that removable
matter, capable of producing so destructive a disease, should continue in
contact with the delicate conjunctiva and produce no effect, in most cases,
for several days; but when, as a prophylactic, M. Cunier recommends
the use of corrosive sublimate, or chloride of lime lotions directly after
birth, we think he risks inducing irritation, which else might never have
occurred. He states, however, that in the case of the infants of women
suffering from leucorrhœa or gonorrhœa, almost all the Belgian prac-
titioners now follow this practice.

Many have doubted the contagious property of the matter secreted
from the infant's eyes in this disease, and with some show of reason, see-
ing the rarity with which the mother becomes affected, even in those
classes in which cleanliness and precaution cannot be adduced to explain
her immunity. M. Cunier, however, among the cases we have adverted
to, met with eight instances of this. In one of these, the towel which
had been employed for the infant communicated the disease to the
mother and two of her children. In three other cases, the disease was
also propagated to the mothers, and in one to the father. It may be
propagated also miasmatically in crowded wards of foundling hospitals.

Few diseases are more satisfactory in respect to the results of treatment
than this, the affection seldom proving unmanageable, save in the case of
the very poor attended by ignorant midwives. The practitioner being in
attendance upon the mother has the opportunity of witnessing the disease
at its very onset. Indeed, he may mistake a sticking together of the eye-
lids, a slight vascularity of their conjunctival lining, and a watery discharge
from the eye, for the disease in question, and unnecessarily resort to active
remedies. It is better, therefore, to wait until the discharge puts on its
purulent character, or until the upper eyelid becomes somewhat congested
or tumefied, before we resort to these, pretty certain as we are of over-
taking the malady shortly. When assured of its nature, we always ensure

the mother's diligent attention, by informing her that the loss or preservation of the eye entirely depends upon the rigid observance of the simple directions furnished her, which consist in ordering the injection into the eye (after previously throwing water into it), by means of a glass syringe, of a portion of a collyrium, formed of gr. v. of alum or gr. ij. of arg. nit. *every hour*, day and night, until the discharge much abates, and then proportionally seldomer. The woman is usually frightened at introducing the substance *into* the eye, and, unless shown how to proceed, will apply it only to the exterior; but, soon perceiving the benefit which accrues, she is encouraged to proceed. Rarely do we find it necessary to resort to leeching, blistering, or any other procedure, save the administration of a mild alterative purge. So uniform and speedy is the success which attends this practice, that we had been long accustomed to give an unhesitating promise of recovery upon its fair adoption; but, from a case or two of late, of no remarkable severity in appearance, indeed quite the contrary, occurring in the enfeebled children of sickly parents, we have learned more caution in stating the force of the conviction we feel.

Mr. Wilde, speaking of this disease, says—

"Having constantly remarked an extensive state of ulceration in the conjunctiva of the upper lid, in the severe forms of this disease, I now generally evert the lid to examine its inner surface as soon as a case presents itself; and I have several times succeeded in cutting short the disease by at once applying a strong solution of nitrate of silver to this part alone. We beg to call the attention of ophthalmic surgeons to this subject."

Congenital Tumours of the Conjunctiva.

Mr. Wilde has commenced publishing, in the pages of our able co-temporary, the "Dublin Quarterly Journal," a series of Reports on the Progress of Ophthalmic Surgery. Although of opinion that the class of literary production in the shape of "Reports," "Abstracts," and the like, is generally a very wearisome species of reading, rising little above the dignity of an index *raisonné* of the contents of the various periodicals either in interest or utility, we can speak of the present one as a favourable exception, in not being framed in so condensed a manner as to render perusal painful and retention impossible, and in being interspersed with sound criticism and observations, indicative not of the mere compiler, but of the original enquirer. It contains an interesting case of Congenital Tumour of the Conjunctiva, which we proceed to transcribe.

"We were lately sent for by Capt. B., of whom we had no previous knowledge, and who was then confined to his room from what we were informed was 'a severe cold and inflammation of the eye.' On arriving at his hotel, we found him labouring under great intolerance of light, lachrymation, and some œdema and redness of the lids of the right eye. Being a person of rather eccentric manners, he refused to give any history of his disease, or describe his own feelings and symptoms, until we had pronounced upon his case. On examination we found the entire conjunctiva highly injected, and two large vascular masses projecting from the surface of the globe; one, the lesser in size, and least apparent, protruded from under the upper lid, just beneath the situation of the lachrymal gland; it was of a deeper pink than the rest of the conjunctiva, and appeared firm and unyielding. The second and most remarkable tumour was, in its then condition, about the size of a horse-bean, placed transversely on the

globe, one-third of it lying in the cornea, the other two-thirds occupying the outer side of the sclerotic. Like that which protruded from beneath the lid, this was of a deep, pink hue, and slightly lobulated on the surface, not unlike a half-ripe rasp-berry. A gush of scalding tears, attended with increased pain and photophobia, followed immediately this examination. We at once pronounced them to be *con-genital tumours* in a state of inflammation, and such they were; that which en-croached on the cornea had several light-coloured hairs growing from its surface. These generally lay quiescent between the palpebral aperture, or, projecting slightly over the edge of the lower lid, seldom caused any inconvenience. The largest had, however, two days before, turned up, under the superior lid, and gave rise to all the symptoms we have described. Its removal caused them to subside almost immedi-ately. The case is interesting and instructive on account of its having been first seen during an attack of inflammation, or, more properly speaking, inflammatory irritation, and from the possibility of its being thus mistaken for a sudden morbid growth. What first awakened suspicion, the moment the lids were separated, was the fact of the tumour being covered with cutaneous epithelium, which, as in cases of xeroma, gave it the appearance of being oiled or varnished, so that the tears did not flow over it, and moisten all its surface, but lay upon it in detached globules. This cuticular character is peculiar to all those growths from which hair grew which we have examined. We have since seen the eye in a quiescent state, and find our conjectures were correct."

Cataract.

Although several of Mr. Brett's observations will be found useful to the young operating surgeon, we are at a loss to discover sufficient novel-ty in these to call for the publication of a new work upon "Cataract, Artificial Pupil, and Strabismus." Indeed, little is to be found in it that is not far more amply detailed in most other works—Mr. Jones' Manual among the rest. The *statistics* of various operations for cataract have been so variously stated by different observers, as to have little claim to our notice. Mr. Brett refers to some of these discrepancies; but we should have better liked to have seen a detailed account of the results of his own practice in India, which we believe some recent advertisements stated to have been both extensive and remarkably successful. Mr. Wilde furnishes us with an abstract of Dr. E. Jäger's account of his father's practice at Vienna. It seems, between 1827 and 1844, he operated upon 1011 cataracts: 728 times by superior extraction, 9 by inferior, 50 by partial extraction; 129 by depression, and 87 by absorption. Of this number, 63 were unsuccessful; the proportion of those who have irre-coverably lost their vision to those who have been successfully operated upon are, in extraction $4\frac{3}{4}$ per cent.; in depression 16; and in breaking up 8 per cent. This is indeed high testimony in favour of extraction; but Mr. Wilde considers the tables as very defective in some necessary details. Mr. Brett remarks, that extraction is much oftener preferred in Germany and England than in France, which he attributes to the absence of special eye infirmaries in the latter country, and a consequent want of opportunity of practically examining into the merits of this operation. In his own practice, Mr. Brett observes, " In India, in the healthy and robust natives of the Western provinces, I have found extraction the most successful; whilst, in the lower provinces of Bengal, where the in-habitants are more feeble, I have not found extraction so successful; but

at the same time, it must be admitted, that we have not many opportunities of watching the result for a long period after the operation." The following is his general summary of the advantages and disadvantages of the respective methods.

" By extraction, the obstruction to vision is entirely removed. It is not usually painful, is seldom followed by internal inflammation, neither the ciliary nerves nor the ciliary vessels are wounded, the whole of the interior of the eye is untouched, the retina, the choroid, ciliary circles, &c.; and, lastly, secondary capsular cataract is less liable to follow this than any other operation. On the other hand, the iris may be cut, and the vitreous humour may escape; if the wound of the cornea does not unite by the first intention it may ulcerate, and the iris will prolapse; inflammation and suppuration of the globe may be the result—at all events, the pupil will become closed.

" In depression, purely so called, the vitreous humour does not escape, the cornea preserves its transparency, there is no chance of prolapsus iridis, or of its excision, and the operation may be repeated if requisite; but, on the other hand, the evils of the operation are acknowledged by all, and are numerous. The lens acts as a foreign body, and often causes much irritation at the bottom of the eye—it is liable to re-ascend: the operation is frequently followed by membranous cataracts, by iritis, deep-seated pain, and general nervous irritation. The needle necessarily penetrates the choroid, the retina, the vitreous humour; and the ciliary processes are at least somewhat disturbed: inflammation is as frequent as after extraction. The wound of the sclerotic, the choroid, the retina, and the vitreous body, does not necessarily produce more pain or injury than that of the cornea, when carefully done. With due precautions it is easy to avoid wounding the nerves or vessels, or the ciliary body. When the capsule of the crystalline is well cut up, there will be less chance of secondary membranous cataract: in short, much depends upon the skill and address of the operator to avoid most of the evils of depression, to prevent the lens rolling round the needle, or falling into the bottom of the anterior chamber, and to place it flat-wise at the bottom of the vitreous humour."—P. 51.

From this extract it is not very easy to decide which operation the author prefers. Mr. Jones speaks far more precisely in the following passages.

" By the operation of extraction, the cataract is removed wholly and at once from the eye, and very good vision restored: but the operation is a nice, if not a very difficult one, and liable to the occurrence of the various untoward circumstances above mentioned, by which its success may be marred.

" The operation of displacement, which may be performed in the same cases as extraction, is neither so nice nor so difficult, does not expose the eye to the same risk of immediate destruction, and though the cataract is apt to return to its former place, the operation may be repeated; but though displacement may have succeeded as an operation, and vision be restored, the eye is not so safe as after successful extraction, but is liable to become affected with internal inflammation, which ends in amaurosis.

" Extraction thus possesses a decided advantage over displacement, and is therefore generally preferred, except when the unfavourable complications above mentioned (viz. unsteadiness on the part of the patient, dyspnœa, overhanging orbit and eye-brow, narrow palpebral fissure, very sunk or prominent eye-ball, unhealthy, small, or flat cornea, and consequently small anterior chamber, synechia, small and undilatable pupil, and especially a dissolved state of the vitreous body and its connexions) exist. The degree of softening of the vitreous body requisite to admit of safe displacement of the lens is not so great as to forbid extraction, but of course, if, in the cases in which the vitreous body is so much dissolved that the displaced lens is apt to float up again, displacement be contra-indicated, extraction is much more so. All other things being equal, it

might perhaps be laid down as a general proposition, that, in the very cases in which displacement admits of being most readily and safely performed, extraction is less safe ; whilst, on the other hand, in the cases in which, in consequence of the soundness of the vitreous body, extraction is most safely and easily performed, displacement is least so.

" As the cases for which division is best fitted are different from those in which extraction or displacement is indicated, there is no comparison to be made between them. It is, however, to be observed, that a combination of division and extraction is sometimes had recourse to in cases of common lenticular cataract of old people. The object of having recourse to this compound operation is that the lens may, by solution and absorption of its soft exterior parts, be reduced to its hard nucleus, which, in consequence of its small size, will admit of being extracted through a small section of the cornea."—*Manual*, p. 292.

M. Laugier described, in a recent number of the " Annales d'Oculistique," an operation for cataract, which he terms by " *Aspiration*" performed by means of a Scarpa needle rendered tubular and adapted to Anel's syringe. This is carried completely into the crystalline, care being taken not to injure either capsule, and, in the case of soft or partially soft cataract, the opaque body is removed by exhausting the tube of the knife of the air it contains by means of the syringe attached to its handle. The priority of the contrivance has been contended for by subsequent correspondents of the Journal ; and it is certain that suction has, in different manners at different periods, been applied to this purpose. Ingenious as M. Laugier's modification is, we fear it is destined to be of little practical utility.

The Operation for Strabismus.

Mr. Brett, as the result of his own practice in India, and his observation of that followed upon the Continent, offers the following suggestions :

" I. To use the scissors always in preference to the knife and director, because by the former you can more readily divide every contiguous fibre both above and below. To the practised hand the point of the scissors grates along the hard fibrous sclerotic coat, and the operator is quite certain that he cuts every muscular fibre. 2. Never to use the hook to claw out the eye, which has always appeared to me at least an unsightly instrument, and somewhat painful, but chiefly because it must be entrusted to the hands of an assistant, who, unless he possess the delicate touch of an artist, and the steadiest hand, may rotate the eye not precisely in the horizontal line. If he give the instrument the least obliquity, he disconcerts the operator in his search after the muscle he has to divide, and he finds it either above or below where he expects it. 3. The operator should have the lids and eye-ball completely under his command ; and this is effectually attained by the speculum of Velpeau. The ordinary speculum often slips, and confuses or obscures the operation ; so do the fingers. This cannot be the case with the speculum of the Professor of La Charité. I have always operated with the scissors, and I have never met with an instance of the return of the squint ; but I have never seen the inconveniences of that part of the duty which devolves on the assistants so happily obviated as by the mode I witnessed in Paris, adopted by Professor Velpeau. I now proceed to describe the operation upon the principles by which we should be guided in all surgical operations, viz. with the least possible pain, the greatest facility and rapidity, in the safest and most effectual manner.

" The surgeon must bear in mind the insertion of the muscles into the sclerotic three lines and a half from the circumference of the cornea. The patient is placed before a clear light ; the opposite eye is obscured ; the head supported by

an assistant; the lids separated by the elastic wire speculum (the blephareirgon). The surgeon seated in front seizes the conjunctiva, together with the attachment of the muscle itself by means of the forceps, near its insertion into the sclerotic, about four lines from the margin of the cornea. This gives the operator complete control over the eye, and by it he is enabled to draw the eye outwards. Immediately after this, he grasps the belly of the muscle with a second pair of forceps. This latter is entrusted to an assistant. The muscle is thus raised and stretched between two pairs of forceps. Its section between the two points of transfixion is now an instantaneous affair. The smooth and bluish-white sclerotica shines beneath the incision, and the operator satisfies himself that every fibre is divided, carrying the scissors above and below until the cornea assumes its central position, and the patient can turn the eye to the opposite side, yet is unable, by any effort, to squint. Finally, the tendinous edge of the muscle grasped by the first pair of forceps, together with some loose portions of conjunctiva, is excised by a stroke of the scissors. This last procedure prevents a very common occurrence, viz. a fungoid granulation, formed from the ragged edge of the tendinous extremity of the muscle, and some cellular tissue beneath the conjunctiva. The eye is cleansed from blood by sponging with cold water. Obscure the opposite eye for some days. Let the patient use the eye which has been operated on in a moderate light. This prevents adhesion and contraction, which might cause a return of the squint."— P. 80.

We cannot quote any observations calculated to facilitate the performance of this operation without declaring that it has been undertaken, during the last few years, with a recklessness and charlatanerie truly disgraceful to our profession, whether we consider the great fundamental principle which should always guide the surgeon, of never performing an unnecessary operation, or the disastrous consequences which have sometimes followed its apparently trifling infringement in so simple a case as this.

In conclusion, we may observe that the works of both Mr. Jones and Mr. Brett are freely illustrated with wood-cuts, and that of the former gentleman contains a good etymological glossary, as indispensable an accompaniment in the study of the diseases of the eye as is a dictionary for the mastery of a foreign language. Certainly single terms, however barbarous, are better than circumlocutions, but surely they are unnecessarily multiplied in ophthalmology, *e.g. Amphiblestroiditis* for Retinitis; *Blepharoblenorrhœa*, the first stage of puro-mucous inflammation of the conjunctiva; *Blepharophthalmia*, the same fully formed; *Dacryo-cysto-blenorrhœa*, discharge from the lachrymal sac, &c. &c.

I. A Treatise on the Inhalation of the Vapour of Ether for the Prevention of Pain in Surgical Operations, &c. By *James Robinson*, Surgeon Dentist to the Metropolitan Free Hospital. 8vo. pp. 64. Webster, 1847.

II. Gazette Medicale, 1847.

Few persons will forget the sensation excited in professional circles, towards the end of last December, by the rapid propagation of the report that

Mr. Liston had succeeded in practising one of the capital operations of surgery, the patient having meanwhile been rendered totally insensible to pain by the inhalation of ether. The incredulity attending the first reception of the news, was, upon its verification, succeeded by an enthusiasm which has ever since held the public and the profession well-nigh spellbound. Excusable as this is in a matter of such momentous interest, we fear it has led to a too indiscriminate adoption and a too exaggerated estimate of the value of the remedy, and has certainly given rise to practices which are highly derogatory to professional dignity. The theatres of our hospitals have been made the scenes of operative display before crowds of "fashionables, lords, princes, distinguished foreigners," and the like, and the proceedings within their walls chronicled in the columns of the daily press, with all the tact, exaggeration, and conventional phraseology of the penny-a-liners; who, we sincerely hope, will not be allowed to convert the *entrée*, so injudiciously granted them upon the present occasion, into a precedent. Mr. Robinson, in his pamphlet, tells us that some of the higher classes of society have graciously condescended to try the effects of the ether upon their own persons; and, referring to some experiments he had the honour to make upon Lady Blessington, Prince Bonaparte, the Marquis of Douro, Count d'Orsay, &c. &c., adds,

"I have mentioned these trials to show that the experiments have not been confined to the poor, but that persons holding a high position in the aristocracy of intellect and rank, have submitted to the inhalation, merely to test its effect; and this is as it should be; as the opinion of such distinguished individuals will naturally favour the practice and lessen the prejudices against it in all classes of society."—P. 23.

The "opinion of such distinguished individuals" is literally not worth a straw, and, indeed, *pro tanto* is adverse to the probability of any scientific fact it is given in favour of. It is of this class of persons the ignorant portion of the public and the medical profession have just right to complain. The patrons of every system of quackery and delusion that offers itself, nothing is too preposterous for its credulity, or too absurd for its practical adoption; and, in the place of holding out an example to the less educated members of the community, it falls the victim to duperies, which their poverty or their natural common sense preserve these latter from. In respect to the proceedings of the medical body itself, we fear that some of the remarks, made some time since by the Editor of the *Gazette Médicale*, are still applicable upon this side of the Channel.

"What should be our object; first of all to verify the fact, to establish it in its purely experimental reality, and to lay down with precision its laws and conditions; secondly, to determine its theory and physiological signification. Instead of this, what has been done? We see persons more eager to mingle up their names with whatever this discovery may possess of novelty and popularity than to do any thing to render it more useful to science and humanity. Most of the essays hitherto made are imprinted with this unreflecting precipitation. Patients, in whose cases operations might perhaps have been dispensed with, have been sacrificed to this desire to have one's doings talked of; and, instead of the production of precise, well analysed, clearly established results, there is furnished but a vain gratification of public curiosity, and pretexts for the distrust and slanderings of those who are jealous of all progress. Doubtless we must make allowance for that precipitation and enthusiasm which are inseparable from all that is new; but it is to be regretted

that thinking men (hommes serieux) should favour this mischievous tendency, in the sole hope of finding their name quoted in a newspaper or hawked about a drawing-room." Jan. 23.

Although objecting to this precipitation, inasmuch as the value of an excellent remedy has so frequently been eventually underrated through the indiscriminate encomia of its original introducer, and believing that some of the distrust such a course is likely to lead to has already begun to be felt ; we hasten to state that we yet feel certain that the Ether Inhalation is destined always to occupy an important place in operative surgery, and eventually to be instrumental in combating various diseased conditions of the economy ; but whether these great ends are to be accomplished sooner or later, will much depend upon the care with which cases are selected, and the exactitude with which their particulars are detailed, both prior to and subsequent to the employment of the ether, and that particularly when this has seemed to be injurious in its operation. Of details of this kind we are as yet much in want, the mere fact of the abnegation of pain in the immense majority of cases being nearly all that has hitherto been satisfactorily established.

The vastness of this boon can only be appreciated by those familiar with the performance and witnessing of surgical operations. The surgeon, aware of the absolute necessity of compressing the feelings, in order that he might place his intellect at the service of the patient, did in fact a violence to those feelings the amount of which he himself was hardly aware of, and the firmness he thus acquired was mistaken too often by the ignorant for callous indifference acquired by custom. The best answer to this is the eagerness with which the best operating surgeons have embraced this means of mitigating suffering, and the heart-felt delight they manifest at its success. They know that not only is the patient saved indescribable torture during the operation itself, but also the scarcely less acute mental suffering anticipatory of this. They see in this exemption of pain a motive for not too long delaying necessary operations, and a greater chance of recovering from their effects.

However necessary we and others may think it that a greater degree of caution be adopted in the pursuit of this enquiry, we suppose M. *Magendie* is the only person who objects to it *in toto*, and this he does on grounds so peculiarly his own, that we cannot forbear quoting a portion of the observations he addressed to the Academy of Sciences.

" I cannot consent to associate myself in this matter with the kind of enthusiasm I am witness to. What I see most certain in all this is, that surgeons are experimenting upon the human race without knowing what they are doing, or what results they are likely to obtain. Such conduct is not distinguished by all the morality that is desirable. (Loud expressions of dissent). You plunge your patients into a state of drunkenness, for it is nothing but drunkenness (and whether the substance be inspired or taken as a drink little matters), knowing at present nothing exactly concerning intoxication produced by ether, which as yet has not been studied with attention.   *   *   *   *   *   *   In acting thus upon your patient you deprive him of all consciousness, and place him entirely at the mercy of those around him. Is it a moral action to plunge a woman into a state of drunkenness and render her insensible to all around her ? Have you reflected on all that may result from this ? In my eyes this new method is liable to such grave inconveniences, that I cannot too loudly protest against the

generalization of its employment. Is whether a patient suffers more or less pain a subject fitting for the Academy to employ itself with? When I see our table covered as it is to-day with a multitude of apparatus, each more absurd than the other, I must avow I experience a very painful sensation. If you wish to continue your experiments upon the ether, do it logically and give it in the fluid form. The vapour is often attended with serious inconveniences, as witness the precautions we take when allowing patients to inspire other substances, such as prussic acid, chlorine, &c. I know well, that what my brethren are doing is with a philanthropic object, but their experiments should be discountenanced, as they may lead to serious accidents, and I insist upon it are of an immoral tendency."— *Sitting of* 1*st Feb.*

The speaker further pointed out the advantage which the retention of sensibility afforded during the progress of operations involving implication of nervous trunks; and commented upon the unreflecting precipitancy with which the results obtained are published. We can only find space for a small portion of M. *Velpeau's* reply.

" Assuredly the effects produced by ether will not pass without being criticised; but I did not expect such a criticism from M. Magendie, and still less could I have anticipated a protest against experiments from him. The expressions he employs are somewhat ungracious, insinuating as they do that we have undertaken experiments without any precaution, and without knowing what we were in search of. On the contrary, the most exact precautions were taken, and it was not until the possibility of producing insensibility by the ether had already been ascertained that we commenced our trials. Moreover, looking at the thing in a proper light, these are not what ought to be termed experiments.

"M. Magendie declares that it is no great thing to suffer pain, and that a discovery which has only its prevention as its object possesses little interest. But does he think there is nothing besides this pain? Is he aware of the anguish it causes the friends of the patient? He seems to participate in the vulgar opinion that surgeons are hard-hearted and insensible. He is not aware then—yes, he knows it well—of the amount of emotion surgeons suppress when they perform a grave operation! If they do not allow this to become apparent, it is because coolness and apparent impassability are among their most essential possessions. How can we be astonished then that they receive with delight a discovery which produces insensibility without danger?"

Although observations so splenetic and ridiculous as those of M. Magendie are calculated in no-wise to impede the adoption of etherization, numerous facts which have now been collected tend to show that it is by no means so harmless a remedy as at first supposed, and that the indiscriminate extension of its employment is objectionable. That the mishaps which have arisen from its use, are, when we consider the immense number of persons of all temperaments, and under every variety of circumstances to whom the ether has been administered, infinitely less than might *a priori* have been expected from the use of a substance capable of so profoundly modifying the normal conditions of the economy, may be cheerfully allowed : but that death itself in several instances, and a very alarming approach to it in many others, have been the direct consequences of such employment, is now familiarly known—not to speak of various hysterical and convulsive symptoms which have been generated by it, and which, although of minor importance, must be taken into account, when we wish to determine the true therapeutical powers of any medicinal agent. It may be said that ether, in thus in some subjects inducing the worst effects,

only acts like various other remedies, which, powerful for good are yet, in-judiciously employed, as productive of evil. But, in regard to most of these substances, we are enabled, by consulting the conditions of the economy and duly regulating the dose, to avoid mischief of this kind ; yet this is far from being the case with ether, and even in the recent fatal case at Grantham, the proper precaution of making a preliminary trial of its effects afforded no indication of what was to follow. It is quite true that a more extended and more carefully devised and recorded experience may even-tually put us in the possession of the means of guarding against these ill consequences ; but, in the mean time, we contend that this measure should *be far more sparingly employed than at present for the relief of the minor class of pains and ailments.* Above all, means should be devised for rigidly confining this great experiment to professional hands accustom-ed to the necessary precautions, and for preventing quacks and the public from tampering with so powerful an engine, and one which so used might, from the peculiar effect it produces upon some women, indeed become, what M. Magendie now slanderously says it is, immoral. Already in London, chemists's shops are placarded " Painless Extraction of Teeth," and those of Paris " Ici on Etherize ;" and, although the correctional police of the latter capital is armed with sufficient power to suppress any abuse of this kind, we fear that we have in this country no anticipatory means at com-mand, and must wait until a few deaths have been produced, and the cumbrous and uncertain machinery of the coroner's inquest put into force, before any check can be placed upon persons, however ignorant or design-ing they may be, meddling with this powerful agent.

But limiting the investigation to grave cases, and remembering that the two great effects of etherization are the temporary extinction of pain and great relaxation of the muscular system, surely the field in which its powers may be fairly brought to the test is wide enough, as is sufficiently seen from the mere enumeration of certain affections in which it either has or may be tried, viz. obstinate neuralgia, tic-douloureux, spasmodic diseases, tetanus, hydrophobia, strangulated hernia, dislocations, irritable conditions of the urethra or bladder preventive of sounding, &c. Among the exten-sions hitherto attempted, that in reference to *obstetrics* is certainly one of the most interesting, as calculated, if applicable to natural labour, to en-sure a greater aggregate amount of exemption of suffering than any other. By many, the pains of labour are spoken slightingly of, and certainly in nu-merous cases neither their duration nor their severity calls for interference : but in other cases, just as numerous, the suffering from them is truly dreadful, demands for the exercise of our ingenuity for its relief quite as urgently as do most surgical operations, especially as its prolongation is so much more considerable than that produced by these. We hold, how-ever, that the conditions for the safe application of ether are not yet suffi-ciently ascertained to justify our resorting to it in natural labour, which is usually a process unattended with danger to life, or when such danger is produced this is for the most part induced by the occurrence of hæmor-rhage, which, there is some reason to fear, etherization might even favour the continuance of. In the mean time, the results of the trials which Professors Simpson and Dubois have made of this substance in natural, difficult, and instrumental labour, are in the highest degree satisfactory,

proving as they do, that, notwithstanding the utter annihilation of pain, the contractions of the uterus and of the abdominal parietes continue active and complete, so that the labours were just as, if not more, promptly terminated ; and in one of his cases, in which the child was very suddenly expelled, M. Dubois noted the important fact, that a very unusual degree of relaxation of the perineum took place. The anticipation of utility from etherization in turning, in cases in which from delay the uterus contracts powerfully around the child and impedes the passage of the hand, seems scarcely well-founded ; inasmuch as, during the insensibility induced by its operation, the action of that organ continues as vigorous as ever.   In considering the propriety of adopting etherization in the practice of midwifery, we must take into account its effects upon the foetus.   As far as the trials of MM. Dubois and Simpson extend, these seem to have been in no wise injurious, although the former observed the foetal cardiac pulsation temporarily mounted up from 125 to 160.

· The discrepancy of opinions as to the *modus operandi* of this new remedy sufficiently proves that we have only approached the first stage of the investigation.   Indeed, the phenomena induced are so various and uncertain that their classification is at present impossible.   Much of this seemed to be due to the imperfection of the apparatus, the unskilfulness of its employment, or the impurity of the ether ; but all these circumstances having been duly provided for, and administered by the same hands and by the same mode, excepting the production of the great end of the abolition of sensibility, the various physiological and psychological phenomena have manifested no kind of regularity in their development.   One person shall become impassable as the subject on the dissecting-room table, another talk incoherently or mirthfully reply to questions or obey directions, others utter exclamations of pain, of which they afterwards retain no reminiscence of having felt, and others, again, declare they have suffered pain, but felt themselves powerless for its expression.   Finally, in not a few, ungovernable violence or convulsive action, quite adverse to the performance of any delicate operation, takes place.   With some, an utter oblivion is induced, while others, while undergoing all the apparent tortures of a prolonged dissection, are revelling in the realms of memory and the fields of the imagination.   The medical profession, as if in contradiction of M. Magendie's calumnies, has been no-wise backward in trying experiments upon its own members, competent to render an account of the phenomena observed ; and, in Paris, exhibitions of this kind have been even carried to a ludicrous extent by some of the medical students.   The sensations induced are almost universally described as pleasurable, and much resembling those resulting from the early stages of alcoholic intoxication ; but the greatest variety of the effects upon self-consciousness, and in the degree in which the recognition of surrounding objects is retained, are reported.   With many, the hilarity induced quite equals that produced by the inspiration of the nitrous oxide.   M. Jobert and other observers have attempted to indicate three distinct stages in its effects, according to the prolongation of the etherization ; 1, that of incoherence, agitation, or delirium, as the case may be ; 2, acceleration of the pulse with loss of sensibility and loss of voluntary power ; and 3, exhaustion and coldness of the surface.   We wish the matter could be thus methodically laid down ;

but it is quite certain that any of these conditions may be induced in dif-
ferent individuals by very various doses of ether, while others, again, are
susceptible of only the first degree to appearance and yet enjoy an im-
munity from suffering during operations. Even the quickened condition of
the pulse and respiration, and the stationary one of the pupil, are by no
means invariable criteria of the effect having been produced, which, again,
in other cases, may take place prior to their induction.

We consider the analogy between etherization and asphyxia, so strongly
insisted on by many of the French Academicians, as defective in many of
the conditions usually held necessary to constitute this latter state. Amus-
sat states that, as the result of his experiments upon animals, the blood
flowing from the carotid artery was dark or fluid, according to whether the
inhalation was pursued or not. M. Renault, detailing those tried at Al-
fort, stated that such change in the blood only took place when the ani-
mals were absolutely deprived of access of air, when, of course, they were
literally asphyxiated. M. Laugier and other surgeons deny that any
darkening of the arterial blood takes place during operations ; but M.
Blandin and others affirm that this is the case ; and we find the same dis-
crepant testimony, upon a point apparently so easily determined, likewise
in this country. M. Lassaigne, analysing samples of venous blood taken
from a dog prior to and subsequent to inhalation, found the following pro-
portions to exist :

$$\text{Prior to Inhalation} \begin{cases} \text{Clot} & .. & 65.46 \\ \text{Serum} & .. & 34.54 \end{cases}$$

$$100.00$$

$$\text{After Inhalation} .. \begin{cases} \text{Clot} & .. & 59.69 \\ \text{Serum} & .. & 40.31 \end{cases}$$

$$100.00$$

The serum of the blood after inhalation retained a reddish colour for
several days, and its coagulum acquired a somewhat greater consistence.
The proportions of fibrin, globules and albumen (allowing for the excess
of serum mentioned above), bore a normal relation to each other. A
minute portion of the ether, forming about 0,0008 of its mass is absorbed
and dissolved by the venous blood.

Various of the French Academicians have instituted series of experi-
ments upon animals for the purpose of determining the mode and order
in which the various portions of the cerebro-spinal system are influenced
during inhalation. The following are some of the conclusions arrived at
by the veteran vivisector, Baron Flourens.

" The action of ether upon the nervous centres follows a given course. It acts
first on the cerebral lobes, disturbing the intellect ; it acts, secondly, upon the cere-
bellum, deranging the equilibrium of the movements of the animal ; thirdly, it acts
upon the medulla spinalis, in which it extinguishes successively the sensory and
motor principle ; and lastly, upon the medulla oblongata, where arrived, life be-
comes extinct.

" It is impossible to observe a single case of etherization without being struck

with the resemblance the new phenomenon bears to those of asphyxia, and experiments exhibit a real relation between asphyxia and etherization. But in ordinary *asphyxia* the nervous system loses its power under the influence of black blood, of blood deprived of oxygen: but in *etherization* it does so under the direct action of this singular agent. This is really all the difference ; for in both there is the same loss of sensation and voluntary motion, and the same, at least temporary persistence of the respiratory movements—in one word, there is the same survival of the medulla oblongata over the spinalis. Etherization exhibits to us the entire mechanism of asphyxia—I mean the *successive death* of the various nervous centres. It isolates, just as mechanical experiments do, the intellectual powers, the co-ordination of the movements, sensibility, motility, life. The isolation of life, this point, this vital knot of the nervous system, forms the most striking fact of the new experiments. In an etherized animal one point alone survives, and while it does so, all the other parts retain at least a *latent life,* and may resume their active life : this point once dying all dies."

We fear much light is not shed upon the subject by these experiments ; for certainly no such exact order in the train of symptoms is observed in the human subject. We are yet, however, we repeat, in the very infancy of the investigation, and careful observation, well weighed deduction, and a not too hasty extension of inhalation for the relief of minor ailments, seem to be the indications for some time to come. That we have become possessed of a valuable instrument, not only as a therapeutical agent, but for the solution of more than one interesting physiological problem, we hold to be certain : and it much behoves us not to discredit it in the eyes of the public or the profession, by a too rash and careless employment. One benefit the discovery has conferred medical men must feel keenly, the overthrow of the only tangible pretension of Mesmerism. It was thought by many, that the profession were remiss in not putting its boasted power of relieving pain to the test. Their joyful acceptance of a means unassociated with chicanery or humbug of any kind, amply proves that any backwardness in this particular did not arise from indifference or a want of duly estimating the importance of the subject, but from their scepticism and their unwillingness to mix themselves up with this wretched quackery.

Mr. Robinson's pamphlet contains a brief history of the progress of the discovery from the period of its importation to the date of the publication. In our notice of his former work we commented upon his undue laudation of the American dental practitioners. We are now rejoiced in the opportunity of acknowledging the great obligation the human race is under to one of these—always supposing his claim, now litigated, is finally established.

PRACTICAL OBSERVATIONS ON SOME OF THE DISEASES OF THE STOMACH AND ALIMENTARY CANAL. By *James Alderson,* M.D. F.R.S. late Senior Physician of the Hull General Infirmary, &c. &c. 8vo. pp. 215. With Ten Coloured Plates. Longman and Co. London, 1847.

THIS volume contains part of the gleanings, in one particular field of professional research, of many years' extensive and carefully-observed experience in one of our large provincial towns and its neighbourhood. The work is thoroughly practical,

and is but the faithful record of what the author has himself witnessed by the bed-side of the sick. He has wisely avoided enlarging its dimensions by the too common practice of introducing large quotations from the writings of others. There is a two-fold division of its contents; the first part being occupied with the consideration of some of the Structural Diseases of the Stomach and Intestines, and the second with that of some of their Functional Disorders. We shall be able to notice the former only.

Dr. Alderson does not enter upon the histological characters of Carcinomatous deposites; nor is it necessary for us to allude to them again, after the ample exposition which we gave, in a late Number of this Journal, of all the most recent discoveries on the subject in our review of Dr. Walshe's classic work.*

Next to the Uterus, the Stomach is the viscus of the body most frequently affected with Carcinoma. All its three forms—the scirrhous, the encephaloid, and the colloid or gelatinous—are met with in this organ; indeed, it is the special seat of the last-named form or species. The morbid deposit very generally occurs as an infiltration of the submucous cellular tissue. The pylorus is the part of the stomach most frequently affected; then the cardiac orifice; next the great, and lastly the lesser, curvature. More than two-thirds or even three-fourths of the organ may be involved in the destructive disorganizing process. When the disease is so extensive, it is generally of the colloid species. The muscular coat of a stomach affected with Carcinoma is usually thickened and hypertrophied; occasionally however—but this is rare—it becomes attenuated and wasted. The size of the organ varies much in different cases. It has been known to be so much expanded, that it nearly reached to the pubes; in other cases it has been found greatly shrunk and contracted. The former condition is present, when the pyloric orifice has become narrowed from the disease; while the latter is generally associated with a like condition of the cardiac.

Carcinoma of the Stomach is more frequent in the male than in the female sex. It seldom occurs before 35 or 40 years of age. In the following extract it will be observed that our author associates together the Encephaloid and Colloid species of the disease under the common appellation of "areolar."

" Of the various forms under which carcinoma attacks the stomach, there are two which, though usually considered as varieties of the same disease, tend to such different results when situated at either orifice, that I am induced to consider them separately. I am willing to admit that they have a common origin, and are only modified in their progress by incidental circumstances.

" One of these forms tends to close the orifice or outlet by the deposit of a dense cartilaginous-like material, constituting scirrhous stricture (Simple Carcinoma). This form (scirrhous stricture) has very little, if any, of a softer material in its composition, and, when it is ulcerated, the abraded surface is small, and the ulceration superficial. The effect of the deposit is occlusion of the orifice, whether of the cardia or of the pylorus.

" The other form, however the deposit may have first commenced in the part, is found, after death, in a softened, ulcerated state, and the outlet is comparatively

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* We have much pleasure in referring our readers to some valuable observations on Cancer in the last Number (for March) of the Edinburgh Journal of Medical Science, by Dr. J. Hughes Bennett. This distinguished observer discusses in his paper the following four questions connected with the disease, which more particularly interest the medical practitioner; viz.—1. Is there any anatomical character which will enable us positively to distinguish a cancerous from any other kind of growth? 2. Is there any evidence that Cancer is ever spontaneously curable? 3. What means do we possess of diagnosing cancerous from other tumours or growths in the living subject? and 4. What influence should our present knowledge of diagnosis have upon the treatment?

open. The deposit is of a mixed character, varying in density from that of scirrhus to the softness of brain or pulp: and the ulcerated surface is always extensive, and covered with fungous projections. This form is called 'Areolar Carcinoma.

" However true it may be that these varieties are originally identical, and only in their subsequent development modified by incidental circumstances, I think it better to consider them separately, and endeavour, by a comparison of the symptoms during life with the appearances after death, to accumulate signs by which we may be able to distinguish them from each other in the living subject. Both varieties are alike constitutional, and both, when developed in certain situations in the stomach, are attended by the secondary deposit of encephaloid or medullary matter in the other viscera, especially in the liver: the particular situations will be hereafter indicated. The secondary deposit in the liver consists always of a soft homogeneous matter dispersed throughout the organ in the form of tubera, which, from their consistence, have been called encephaloid or medullary.

" In consequence of the mechanical functions performed by the orifices of the stomach, which, when in a natural state, and not in action, are always contracted, we find the coats at the orifices to be composed of a denser and more compact structure than the rest of the stomach ; and it may be to this peculiarity of structure that we must attribute in them the prevalence of the scirrhous form of carcinoma, uncomplicated, or nearly so, with areolar deposit, a supposition borne out by the fact that we never meet with scirrhus in its simple form in the larger curvature of the stomach."—P. 15.

One of the most prominent symptoms of *Carcinoma* (whether in the scirrhous or areolar form) *of the Cardiac orifice* is the rejection of the food immediately, or very soon, after it has been swallowed.

" The common saying among hospital patients is, 'that one mouthful brings another up,' which mode of expression, though rude, is almost literally true, since the distension of the œsophagus by a second mouthful causes the whole to be immediately rejected. This is sometimes accompanied by a sense of suffocation: the patient feels the food go to a certain spot, and then stop: pain is immediately experienced at that point, and vomiting succeeds. The pain is of a dull, aching kind, and strikes through to the back and between the shoulders.

" In the earlier stage and progress of the disease, vomiting does not occur invariably after taking food, but it is never absent during many days together ; the interval gradually diminishes as the disease advances: when stricture takes place, vomiting becomes a constant symptom, always following immediately when nourishment has been taken. The food then returns in the same state as it has been swallowed, or mixed with ropy mucus, secreted by the lining membrane of the œsophagus. Ultimately, even liquids will not pass into the stomach, and the patient having subsisted upon his own fat, at last dies, emaciated, of starvation."—P. 21.

The amount of suffering from Carcinoma of the Cardia is, as might be expected , greatly more severe, but much less protracted than when the Pylorus is the seat of the disease. In some cases, not a mouthful of food can find its way into the stomach, while the sharpest hunger is experienced all the while. There is then no other way of supporting life, except by the use of nutritious enemata.

In no instance of cardiac Carcinoma, occurring in the practice of our author, did he discover on dissection any traces of encephaloid deposit in the liver.

When *Carcinoma* occurs *in the larger Curvature of the Stomach*, it is invariably of the areolar form ; true scirrhus being never met with in this part. Its presence is

" Attended by symptoms of dyspepsia in an aggravated form, by vomiting at variable periods after taking food, by the escape of fetid air from the stomach, and usually by great pain at the pit of the stomach, which is increased by the slightest pressure.

" There is a sense of great debility. The countenance is very anxious, and the spirits depressed ; the complexion is exsanguineous and opaque ; the tongue is always clean ; the state of the bowels varies in different cases, but is usually confined.

" In some few cases vomiting does' not occur, and frequently, in the later stages of the complaint, it is superseded by ' sour risings,' by fetid ' mouthfuls,' which are brought up from the stomach.

" Less pain is experienced in this situation of the disease than when it occurs at either of the outlets. Emaciation takes place, but not to the extreme extent which accompanies scirrhous cardia.

" There is always deposit of encephaloid tubera in the liver."—P. 53.

As long as the Cardiac and Pyloric orifices remain sound, food can be received into the stomach ; but the organ never contracts with its normal force upon its contents, and thus a greater or less degree of difficulty is always experienced in propelling the half-digested mass, either upwards into the œsophagus, or downwards into the intestinal canal. On examination by the touch, a tumour may very generally be detected in the epigastric region ; as the disease, however, advances, this becomes increased in size, but less circumscribed and definite in form.

" The increase of the mass, in this case, is to be attributed to the encroachment of an enlarged liver, and to subsequent adhesions between the liver, the stomach, and neighbouring organs. In consequence of the increase, the position of the tumour is no longer to be distinctly referred to one spot ; and that, which was previously a comparatively distinct tumour, is superseded by a gradually increasing mass, which extends across the pit of the stomach, and below the cartilages of the ribs."—P. 54.

Carcinoma of the Pylorus.—The pyloric extremity of the stomach, as we have already said, is by far the most frequent seat of malignant degeneration (which is generally of the areolar kind); and there is less difficulty in forming a correct diagnosis as to the disease, when it is situated in this than in any other part of the viscus. The tumour in the epigastrium is usually distinct and well defined, until adhesions between the stomach and the adjacent viscera have taken place, and then its form and outline become less distinguishable. The commencement and progress of the disease are usually indicated in the following manner :

" Pyloric disease at its onset is usually marked by symptoms of dyspepsia. They are urgent and distressing, and do not yield to the remedies which are found to avail in functional disorders of the stomach. These will have been present for about two years before the disease approaches to a crisis. In the latter year the change to the true cancerous complexion marks the uncontrolled advance of structural disease. With a few exceptions, pain, which is aggravated by touch or pressure, is experienced in the region of the stomach, to the right of the ensiform cartilage. During the examination, when the diseased part is touched, it is usual for the patient, though suffering severely from the ordeal, to express a peculiar and melancholy satisfaction that you have touched the precise point from which all his pain proceeds.

" Sickness is also generally a marked symptom of this situation of the disease ; it comes on two or three hours after taking food, and is almost always preceded by pain."—P. 76.

In some cases, indeed, little pain or vomiting is experienced ; but the absence of these symptoms is, as might be supposed, quite an exceptional occurrence. The sickness is sometimes suspended for a period of several days at a time.

" I have known an interval of fourteen days between the vomiting, when all at once the accumulation of nearly all that had been taken during the interval was vomited in a chymified state, mixed with mucus, or with vitiated secretion from the ulcerated surfaces. The greatest relief is experienced after this complete emptying of the stomach ; and when it occurs for the first time, the patient has

a delusive conviction that the complaint is finally subdued. The accumulation, however, soon again takes place; and it is painful to witness the corresponding depression which succeeds this temporary but disappointed hope. It is usual at this time for the spirits to begin to droop, and the patient is unable, upon the faintest excitement, to restrain emotion, even to tears."—P. 78.

Ulcerated Carcinoma of the Pylorus is almost invariably associated with Encephaloid disease in the Liver; and not unfrequently, when the nodules or tubera of this morbid deposit are situated on the anterior surface of this viscus, they may be detected by careful examination through the abdominal parietes. Jaundice is not an uncommon result of this hepatic complication. The gall-bladder is almost always found to contain gall-stones. Dr. A. remarks, that several of his patients, who were the subjects of cancer of the pylorus, had previously suffered from attacks of gall-stones.

Carcinoma External to the Stomach.—The following narrative of the pathological changes alluded to under this appellation will best enable the reader to appreciate the value of Dr. Alderson's descriptions:

"Deposit of carcinomatous matter may take place beneath, or on the free surface, of the serous membrane covering the stomach, and the neighbouring viscera (as the duodenum, the head of the pancreas, the omenta, the mesocolon, &c.): the deposit varies in consistence from the hardness of scirrhus to the softness of pulp. It is difficult, if not impossible, to assign a position to the earlier deposit; as it increases, however, lymph is effused, and adhesions are formed, by which contiguous parts are glued together; the viscera become bound to the spine, and to each other, by these adhesions, and, as a consequence, the healthy performance of their various functions is interfered with. The adhesions often present a dark smoky hue, and jelly-like appearance, and are easily torn through: the proximity of organs, rather than the similarity of function, seems to be the cause of their being involved. The order in which the parts are severally included in the diseased mass may be inferred from the succession of the symptoms which will be hereafter detailed: this order, as well as the number of organs finally included, varies in different cases. In some cases the disease proceeds until portions of the stomach, the duodenum, the pancreas, the colon, and even the liver, are all involved in one diseased mass, forming an undefined tumour. In the latter stages of the disease, ulceration finds its way into the duodenum, the stomach or the colon. The ulceration has a peculiar character, differing from that which results when the primary seat of the deposit is in the submucous cellular tissue: the disorganizing process is, perhaps, more properly expressed by erosion, which takes place through the coats, where either hard or soft material of carcinoma is deposited."—P. 98.

The Symptomatology of the disease is thus very accurately given:

"Amongst the earlier symptoms of this disease, unsatisfactory relief from the bowels is the most prominent. It is experienced for a year or more before the more urgent symptoms set in, and is accompanied at intervals by nausea, retchings and headache. Pain is also suffered, but not to any great extent, and it is referred by the patient to an unremoved accumulation in the bowels; it is described as situated at the pit of the stomach, or rather lower. The patient subsequently begins to lose flesh, the features shrink, the complexion becomes opaque, sallow and exsanguineous; the eye looks sunken, and the strength begins to fail; great anxiety about his health now possesses the patient, who is often prone to seek various opinions, until he finds a voice ready to flatter him with the delusive promise of a cure.

"At this early period the tongue is tolerably clean, but not in the peculiar degree met with in carcinoma of the interior of the stomach; the pulse is, on the whole, natural, but inclined to be weak and frequent; there is often morbid

appetite, and considerable thirst; sometimes a degree of voracity for food, whether solid or liquid.

" The accumulation in the colon really exists, and is with difficulty dislodged. Pyrosis often supervenes, with the peculiar drawing-in of the diaphragm to the spine.

" Within three or four months of a fatal termination a careful examination of the abdomen usually reveals an unusual fulness a little to the right of the pit of the stomach; it is hardly felt as a tumour, but as an undefined resisting mass, and it appears to rest upon the spine : pressure by the hand causes pain ; and, the same as in cases of ulcerated carcinoma of the stomach, I have several times noticed that the patient exclaims with satisfaction that the precise seat of the pain has been touched, and he generally adds his conviction that the cause will be removed.

" At this time loss of flesh and strength increases, the appetite fails entirely, there are vomitings and retchings : the nights are restless, attended with pain. Hiccup is a very distressing symptom, and increases both in violence and in duration of the fit as the disease advances. The tongue shows a tendency to aphthæ, which also gradually increase. Local irritations on the skin, as erythema and erysipelas in the lower extremities, sometimes appear ; and whilst they are present there appears some little remission of the other symptoms. Diarrhœa of severe character sets in at intervals : jaundice, with all the symptoms attendant upon it, often supervenes about this stage of the disease."—P. 102.

In the closing scene, the prostration is sometimes extreme ; the patient is exhausted with hectic fever ; and vomiting of dark-coloured fluid, or even of blood, is generally present in a greater or less degree.

It is a melancholy feature of the disease which we have been considering, that in its early stage it is generally mistaken for mere functional derangement of the stomach, and treated accordingly ;—by remedies too that often serve but to aggravate the existing lesion. We have already seen that one of the most constant symptoms, at the commencement of the disease, is the sensation of load in the bowels ; a sensation which is somewhat relieved indeed by free alvine discharges, but only to return with as much distress as ever. There is, in many cases, a large accumulation of fæculent contents in the colon during the course of the malady— (a circumstance which may lead a physician to suspect a much wider extent of morbid deposit than really exists) ; but, even when these have been duly evacuated, the uneasiness in question is found to be scarcely lessened. In our author's opinion, it "is rather to be attributed to the presence of carcinomatous deposit, and its progressing adhesions, than to accumulation within the bowel, to which the patient always attributes it." We should, therefore, be on our guard not to have recourse to unnecessarily active medicines, in the vain hope [of giving any material relief to symptoms which are inevitable. The use of any but the very gentlest aperients is still the more necessary, when there is reason to believe that the morbid process has involved any portion of the gastro-intestinal mucous surface.

This remark naturally leads us to the subject of the *treatment* of Carcinoma of the Stomach. The skill of the kind and wise physician consists rather in guarding his patient from injudicious, and perhaps hurtful, medication than in seeking to arrest, or even to materially mitigate, the fearful disease that he has to contend with. Our author writes with no less good feeling than sound judgment in reference to the sad duty which a medical man is called upon in such a case to fulfil, when he seeks to comfort where he dare not promise, to calm and tranquillize where he cannot encourage. His principal remarks on the therapeutic part of his subject are contained in this passage :

" As soon as the symptoms fairly indicate that the disease is in the larger curvature, or in the pylorus, as we have endeavoured to show they may do before ulceration commences, and long before positive evidence is given in the

form of tumour, a course of active counter-irritants should be immediately adopted. Local depletion, either at the pit of the stomach or over the spine, may succeed in checking or retarding the irritation of the mucous coat, and blisters may be applied as near to the seat of pain as possible. It is necessary at the same time to discontinue all aperient medicines which tend to irritate the mucous membrane of the stomach, and to choose such as act upon the colon, since we must seek to obtain enlarged secretion from the mucous membrane of the bowels, both as a counter-irritant and as a measure of depletion. The occasional and moderate use of calomel, unmixed with any irritating purgative, or of hydrargyrum-cum-creta, is a most useful adjunct. There is evidence in several ways that counter-irritation has apparent power in this disease. The appearance of gout and erysipelas seems to stay the progress for a time. In Case No. 8, there is an instance of an external ulcerated tumour in the groin, which seemed to divert the course of the disease.

" Simple astringents, as lime-water given in milk, and sedatives, may be usefully employed in this stage of structural disease, in the same way as if the secretions, intended to be corrected, were the result of mere disordered function. All stronger astringents should be carefully avoided. The opiates should be sparingly had recourse to, as there will be too much occasion for their aid in succeeding periods of severer trial; they may be usefully combined with alkalis, if indicated, and with hydro-cyanic acid. The diet should at once be changed, to avoid all irritating, stimulating food. The simple animal food which is so useful in common dyspepsia will be too irritating for this stage; beef and chicken tea would not be objectionable, but there is generally a distaste for them. Milk is the only animal food which is generally agreeable, and it is highly appropriate. Pure air, quiet, rest from great exertion, whether mental or bodily, but especially the latter, should be sought."—P. 150.

The alterative most worthy, in his opinion, of a fair trial in the early stage of cancerous development is the Bichloride of Mercury, in minute doses conjoined with Sarsaparilla. The extract of Conium has been found one of the safest and most useful anodynes. The application of a Belladonna plaster to the epigastric region at the same time may assist its soothing action.

Dr. Alderson has a chapter on *Hypertrophy of the Coats of the Stomach.* The disease is limited to the pyloric extremity of the organ, and is almost always associated with—perhaps generally dependant upon—a contracted state of the pyloric orifice. It appears to be generally attributable to chronic inflammation of the mucous coat in the first instance, this inflammation extending to the other coats of the stomach in consequence of the use of stimulating food and drinks.

" This disease is preceded by morning sickness, and want of appetite; in the later stages the general symptoms are constant retching and sickness; great impatience for drink, which, of whatever quality, and in whatever quantity, is always immediately rejected. Dark-coloured fluid is also vomited in large quantity. Every thing taken into the stomach gives pain, and causes not only its own rejection, but also copious vomiting of vitiated secretion from the mucous lining of the stomach. There are heats and chills, and the pulse is quick and the tongue furred. Pain is usually felt on pressure at the pit of the stomach, but not invariably; more so, probably, in cases which owe their origin to unsubdued chronic inflammation than to mere obstruction at the pylorus.

" Emaciation is not a symptom of the disease, and hence its absence negatively distinguishes the complaint from carcinoma."—P. 132.

Two interesting cases are related. In both, the prominent and most distressing symptom was an almost incessant vomiting. We are tempted to give the report of the second case complete.

" Mr. H., aged 49, a traveller for a mercantile house in the wine and spirit trade. He had been an active man of business, and in the course of seeking

orders for his trade, had been led into convivial habits, which increased to an extreme degree. When I first saw him he was vomiting continually, always calling for liquids, toast and water, soda water, and even brandy and water; all of which were immediately rejected, together with a large quantity of mucous secretion, from the stomach. He was moaning, and restless, and seemed to find most relief by lying upon his stomach, rather on one side, and was very disinclined to be questioned, though anxious for relief. His pulse was small and quick, his tongue furred, and the urine high-coloured.

"On examination, the slightest pressure at the pit of the stomach caused him great pain. He said, *there* was situated all his misery, and unless something were done, and soon, to relieve it, he must die.

"All these symptoms had come on about a week before, and had continued increasing to the period of my seeing him. For a long time previous to their appearance he had suffered from morning sickness, want of appetite, occasional pain, and flatulence. He attributed his discomforts to his mode of life, and confessed that he usually sought to relieve them by additional stimulants. He was still a fine-looking, muscular man, not at all emaciated.

"General depletion was not ventured upon, as he had recently been the subject of delirium tremens; the most active local antiphlogistic measures were resorted to, but without giving relief. Nothing which was done seemed to have any control over the sickness, which was continued to the last. He only lived a few days.

"*Examination of the body 24 hours after death.*—On opening the body the parietes were well stored with fat.

"The stomach was the seat of considerable change; the lining membrane was of a dull red colour; the opening into the duodenum was narrowed, but freely admitted the finger; the muscular and mucous coats were found hypertrophied. The muscular coat was firm, rather than hard like scirrhus; the mucous coat softer than natural, and thickened and injected."—P. 138.

We must now take leave of Dr. Alderson. The perusal of his present volume has afforded us much gratification, and we trust that ere long we shall again have the pleasure of introducing him to the notice of our readers.

EXPERIMENTAL RESEARCHES ON THE POST-MORTEM CONTRACTILITY OF THE MUSCLES, WITH OBSERVATIONS ON THE REFLEX THEORY. By *Bennet Dowler*, M.D. New York, 1846.

It happens, from time to time, that some writer favours the world with speculations directly opposed to what are, by common consent, received as established laws and principles in science. On such productions people usually, and with good reason, look with some degree of suspicion; for, in order to make room for their reception, the labours of the most splendid minds must first of all be set aside. The brochure before us belongs to the category just indicated. The author, not satisfied with criticising what are, to him, the errors of Haller, sweeps away the ground-work on which Bell based his splendid discoveries; and having accomplished this feat to his own satisfaction, naturally enough asks whether, after all, there be any discovery in the doctrines of our distinguished countryman.

After such achievements, it is a small matter that our author demolishes without remorse, nay, with some indications of inward satisfaction, the whole theory of the reflex action, treating Dr. Marshall Hall with much less ceremony than is

extended to his illustrious predecessor. Our readers will have formed great expectations of a work having such lofty objects; and may, if former experience has not cooled down such anticipations, be anxious to learn the character of these "Researches." For the sake of truth, and for the vindication of all sound physiology, we must place a very low value upon Dr. Dowler's investigations, whether regarded in the light in which it is wished that they should be viewed, namely, as original researches, or as invalidating the fundamental laws of innervation. We have no wish, however, to affirm, that these observations are devoid of interest; nor that, if published as illustrative of a somewhat obscure class of phenomena connected with muscular action, they would have been uninstructive; but, considered as the lever by which the magnificent superstructure of modern neurology is to be overturned, we hold them to be most vain and futile. On looking over the arguments and statements of Dr. Dowler, it becomes, moreover, immediately apparent, that his acquaintance with the anatomy and physiology of the present day is most defective; and one consequence is, that he brings forward as a novelty what is familiarly known to all careful observers on this side the Atlantic, namely, that muscular contractions, occasionally of a powerful character, so that the limbs are moved, may take place shortly after death. Another result of his imperfect knowledge is, that the author is ignorant of a large body of evidence, which has brought conviction to the professional mind of Europe, that the doctrine of the spinal action is a great truth, henceforth to be ranked as one of the fundamental principles of physiological science. Such indeed is the agreement upon this subject, that it would be useless to waste our own space and the time of our readers, by any lengthened refutation of the crude and fallacious reasoning with which we are informed our American brethren were first favoured in the New York Journal of Medicine. A few extracts will exhibit the physiological acumen and qualifications of a writer who has the ambitious aspirations we have just noticed.

" The reflex school maintains, not only that the integrity of the spinal cord is indispensable to transmission, but that the division of the anterior roots is a complete barrier to muscular motion. This doctrine is not based on the healthy, living body. It is not, with a few obscure and unimportant exceptions, deduced from morbid conditions, but from the last agony, and more than all, from the recently dead state of the inferior animals—a kind of proof by no means satisfactory.

" It should never be forgotten that experiments on the inferior animals, as frogs and turtles, are inconclusive in establishing the complicated physiology of man."—P. 8.

It is difficult to conceive with the evidence possessed upon the points here referred to, how this passage could have been penned: the only possible explanation is the one above suggested. What, it may be asked, are the phenomena displayed in the anencephalous infant that survives its birth ? It breathes, it cries, it sucks, it discharges the excreta of the body. How, we would ask of the author, are these complex, associated muscular movements performed ? Do they involve *any* nervous agency ?—if so, what is the part implicated? Brain there is none ; and we may presume that even Dr. Dowler would not attribute either to the nerves or to the great sympathetic, the power of originating and combining in functional action, muscles so numerous and remote as those engaged in the functions named. What other conclusion remains, but that the spinal cord is the necessary and active centre. As to the objections raised against vivisections, they do not apply to the case before us. If it can be shown that, in a decapitated turtle or frog, or in a rabbit with a portion of the spinal cord removed, impressions made on the skin produce definite, and, as it has been clearly proved, functional muscular actions; if it can be shown that the same results are, proportionally to the parts excited, induced by irritating the posterior roots of the nerves, whilst they are arrested by the division of the anterior roots, and are totally prevented

by the destruction of the cord; admitting these phenomena, can any one acquainted with the unity of the organic laws, that one great truth which has been evolved from the profound researches of Cuvier, of Owen, and of every successful cultivator of this branch of science, can any one, we ask, entertain a doubt that, the conditions being the same, the consequences would also be the same in man, with a spinal centre constructed upon essentially similar principles to that of reptiles and mammals? If such kind of evidence be rejected, physiology must return to its very infancy; for, with a few exceptions, little or nothing can be learnt, strange as it may sound to some ears, of human physiology from observations exclusively restricted to man. The difficulty of drawing safe deductions from experiments made on animals, relates to the phenomena of sensation, not of motion, which, as a general rule can be certainly and successfully interpreted.

In further illustration of his argument the author invokes the supposed fact that "an earth-worm may be cut into several pieces, and that each portion becomes a perfect animal." No one acquainted with the structure of this annelide and with the laws of development, could imagine such a departure from the principles of formation; but, for the information of Dr. Dowler, we may state that, by numerous experiments made some years ago, we ascertained that no portion of the earth-worm severed from the head, however large, survived beyond a limited period, dependant upon the length of the segment: the part so detached dies ring by ring.

It would, however, be useless to dwell longer on the errors with which the work abounds, in reference to the received opinions of physiologists; we therefore proceed to notice briefly the author's own researches, into the mysteries of which we are thus somewhat facetiously initiated. "During an attempt to produce contusions on the recently dead body, I happened to select a spot over the middle of the biceps; a blow there (the arm having been extended on the floor) caused the subject to slap his hand against his face with much force. I was almost as much surprised as was a black man that I hired to aid me in a private dissection in St. John the Baptist street, in 1842, of the body of a gentleman of much travel, who died of remittent fever. Previous to this dissection, which was two hours after death, I struck the arm with the inferior edge of my extended hand. The subject contracted his arm, carrying his hand to his breast. My aid looked to the door, which had been closed beforehand, and begged to be let out without delay."

This post-mortem muscular contractility Dr. Dowler regards not only as a thing, till seen by him, unknown; but likewise as an important point of departure in the analysis of some of the most interesting problems in physiology. Many other similar instances, out of a very large number, are related; being principally cases of death from yellow fever, that occurred at New Orleans. One or two of these we extract:—

"Mr. S., aged 45. Dead two hours; legs becoming rigid; struck the flexors of the arm with the inferior edge of my hand; the cadaver raised his arm with a regular slow movement, placing his hand upon his breast: as soon as the muscles relaxed, he carried his arm back, extending the same. The experiment was repeated three or four times, when the arm fell back exhausted. The blows were now made with a piece of wood. The biceps gathered up into a lump, at the place where the blow was given, but failed to move the fore-arm."—P. 19.

The following and other cases show that calorification may take place after death:—

"J. K., a Philadelphian, aged 25. In fifteen minutes after death presented the contractile phenomena in its most intense form, but which declined wholly in one hour, the body being everywhere flexible. In half an hour after rigidity set in. This body, which before death had been remarkable cold, had a temperature after death as high as 109°, and which did not refrigerate below 104° in three hours after."

In reference to this development of heat, the author observes, "the continuance of, or rather the degree in which post-mortem heat is evolved bears no proportion, I repeat, to the intensity of post-mortem contraction. The great heat developed in the dead body, I have endeavoured to illustrate in the medical journals of our country, and will not, therefore, dwell upon that subject at present. I find, however, on examination of the original papers not yet published in detail, that for the most part, when the heat had declined the contractility was exhausted, but that the presence of great heat, ranging as high as 113°, did not by any means imply the presence of contractility, nor the absence of rigidity. Authors seem not to have been aware of the augmentation of animal heat after death; some have, it is true, noticed an increase of heat after death from Cholera, compared with the extreme coldness of the surface during the last hours of life; but has any one hinted that this post-mortem heat ever rose as high as even the healthy standard, to say nothing of 14? or 15° beyond that?"—P. 23.

The cause of the contractions above described, and similar instances occurred in this country during the prevalence of cholera, is doubtless the *rigor mortis*, and is, therefore, independent of the nervous centres. Such is the conclusion of the author; but it is also the opinion of physiologists generally, in the present day. Mr. Bowman was the first writer who distinctly showed by microscopic observation, that the individual muscular fibres contracted independently of the presence of nerves; and we have here the clue to the more extensive, but essentially the same phenomena related by Dr. Dowler, which, therefore, can have no bearing upon the question of the spinal action. If the republication of these views be the result of any peculiar importance attached to them on the other side of the Atlantic, we fear that modern physiology has not penetrated very deeply into the American professional mind; with this remark we must dismiss these most crude "Experimental Researches."

THE MICROSCOPIC ANATOMY OF THE HUMAN BODY IN HEALTH AND DISEASE. Illustrated with numerous Drawings in Colour. By *Arthur Hill Hassall.*

THIS work, we are glad to find, continues to appear regularly in the monthly Parts, as announced by the author in his prospectus; a point of some consequence to purchasers, when the irregularity of some other works is remembered. The plates are, on the whole, accurate and characteristic; and the text is sufficiently extended to convey a knowledge of the structures represented.

There are, however, some omissions which might, with a little care, be avoided; for example, in the description of the formation and growth of the nails, no notice is taken of what evidently concerns both points, namely the disposition of the vascular papillæ and loops lying beneath the nail and enclosing both surfaces at the part called the root. Although these organs, the nails, are, as stated in the text, essentially formed of cells, and are therefore extra-vascular, still the disposition of the blood-vessels is a circumstance requiring consideration. The exact extent of the synovial membrane, and the relations of it to the articular cartilage, are not given with the precision of which the subject is now susceptible, and which is required by the great importance of the question in its bearing upon disease. We merely allude to these matters in order that, in the future numbers, every attention should be paid by Mr. Hassall to details of this character. We can again speak in terms of commendation of this work, and doubt not, when completed, that it will be found a very useful compendium of minute anatomy.

Body and Soul; or, Life, Mind, and Matter, considered as to their peculiar Nature and combined Condition in Living Things, &c. By *George Redford*, M.R.C.S., &c. Octavo, pp. 232. London, Churchill, 1847.

Such of our readers as are partial to metaphysico-physiological enquiries will be pleased, we should think, with this work upon the whole. A variety of questions connected with the manifestations of Vital and Mental Action are successively brought forward and discussed. Among these, Phrenology attracts a good deal of notice, its claims are examined [but not with perfect fairness] and declared to be for the most part visionary. Here is a specimen of our author's reasoning :—

"The general fact of the brain being the organ of the mind is admitted by all; and we may perhaps venture to say, that the hemispheres are the especial organs of the intellect. Yet if we attempt to go beyond this, we verge upon hypothesis; however, phrenologists boldly tell us, that the anterior portions of the hemispheres are the seat of intellect, and the superior of the 'sentiments,' which, by the way, is a rather obscure word, while the posterior are devoted to the propensities or animal faculties. We will forego the discussion of the physiology of such an arrangement, to point out that this would be anatomically wrong, for the posterior or animal regions are deficient in some lower animals: a sheep. *e. g.*, possesses no posterior lobes of its brain, only the middle and anterior, therefore it should be only intellectual and sentimental; a sufficient absurdity. The posterior part of the brain in man is commonly larger than the anterior; and in comparison with the same parts of the brain in lower animals, is much larger in proportion than the same part in any of them; but we do not find that man at all equals the lower animals in the care and '*love of offspring*' or '*inhabitiveness*,' the love of particular places, all of which faculties are located by phrenologists in the posterior parts of the brain; again, in children the most prominent parts of the brain are those to which the faculties of '*reasoning*' and '*caution*' are allotted, which is rather paradoxical; the proper explanation of the fact being, that those parts of the brain appear exceedingly prominent on account of the large proportionate size of the brain and the smallness of the face, the greatest length and breadth of the brain being at those points."—P. 189.

On the Relations of the Physician to the Sick, to the Public, and to his Colleagues. By the late *C. W. Hufeland*, M.D., &c. 12mo. pp. 37. Oxford, 1847.

The perusal of this little work will do good to every member of our profession. It is replete with pure and elevated sentiments. How well did the venerable author appreciate the true dignity of Medicine :

"The healing art, therefore, is something sublime and really divine; for its duties coincide with the first and most sacred laws of Religion and philanthropy, and require resignation and an elevation of mind far above worldly desires. None but a really moral man can be a Physician in the true sense of the word, and it is such a one only that can find satisfaction in his vocation; for he alone is conscious of a higher end of existence, which exalts him above earthly considerations and the joys and troubles of life. To improve his mind, to sacrifice his person for the public good and a better world, and to disseminate good around him as much as lies in his power—is what he aims at; and where can he attain that end

better than in a profession which gives him daily opportunities, yea, compels him to perform philanthropic acts, acts that are incompatible with selfishness? His professional duties therefore. will always beautifully harmonize with his convictions and principles, and, so to say, flow from them. What he ought to do, he does with pleasure; and the consequence will be the highest happiness of man, a consonance of external and internal life. Woe to the Physician, who makes money, or the honour of men, the end of his efforts! He will be in continual contradiction with himself and his duties; he will find his hopes disappointed and his efforts unproductive; he will curse a vocation which does not reward—because he knows not true reward."—P. 2.

May such sentiments find a response in the breasts of all!

AN INQUIRY INTO THE ACTION OF MERCURY ON THE LIVING BODY. By *Joseph Swan*. Third Edition, stitched, pp. 34. London, 1847.

MR. SWAN is a disbeliever in, though he does not absolutely deny, the absorption of mercury and its compounds. But, whether mercurials become absorbed and enter the circulation, or produce their effect by contact with living parts, they affect, in the opinion of Mr. Swan, the nervous system. The parts of the nervous system acted on are the ganglia and branches of the sympathetic nerve. By the action of mercury on them, these parts become irritated, stimulated, or inflamed.

Mr. Swan dissected the sympathetic nerve of a person "who seemed to have been under the influence of mercury," and found that the ganglia and branches of the sympathetic and the par vagum were enlarged. He made twelve experiments to determine the effects of mercurials on animals, and found, after death, that the ganglia and sympathetic nerves were redder and more vascular than usual.

From these experiments Mr. Swan infers that mercury, when swallowed, first produces an irritation of the branches of the sympathetic nerve, spread on the villous coat of the intestines; and, by communication, may secondarily affect the nerves of the limbs, but not to the same extent as the sympathetic.

Mercury, he says, is a decided stimulant of the nervous system, and, through this, of the sanguiferous system. When it has been swallowed, it produces its peculiar irritation on the stomach and intestines, and afterwards probably passes off somewhat altered in its chemical nature; for, after the use of calomel and crude mercury, matter resembling the grey oxide has been several times found in the stools and in the intestines.

" A small quantity of mercury gently excites the salivary and absorbent organs, and promotes the functions of the viscera without any disturbance of the constitution. But, when it is continued so as to affect the body generally, it produces an increased action of the heart and arteries, a furred tongue; and, according to the vigour or feebleness of the patient, irritative fever, an increase or depression of the spirits, and generally, along with one or more of these symptoms, irritation of the mouth, and an increase of the saliva, urine, perspiration, bile, and other secretions, through the excitement it produces on the respective organs. When a sufficient quantity has been employed, it produces a general excitement of the sympathetic, and through this of the viscera."

Mr. Swan states that, independently of its specific influence, the inflammation it excites quickly tends to ulceration.

" As mercury acts so decidedly on the sympathetic nerve, it can be readily understood how the intestines and the rest of the abdominal viscera are influenced, and the heart and arteries, and how it excites the action of the salivary

glands and other parts about the mouth by means of the branches of the superior cervical ganglion, which accompany all the branches of the external carotid artery in nearly the same manner as those of the semilunar ganglion do the arteries distributed on the abdominal viscera."

From the preceding extracts and statements our readers will form some idea of Mr. Swan's hypothesis of the action of mercury.

AN ESSAY ON THE TONGUE IN FUNCTIONAL DERANGEMENT OF THE STOMACH AND BOWELS, AND ON THE APPROPRIATE TREATMENT; ALSO THE TONGUE'S ASPECT IN ORGANIC DISEASE OF THE LUNGS AND HEART. By *Edward Williams*, M.D., Senior Physician to the Essex and Colchester Hospital. Second Edition, 8vo. pp. 236. Simpkin & Co. and Renshaw. London, 1847.

THE following extract from the Author's Preface gives, if we mistake not, the very pith and kernel of his elaborate researches.

"It was after much reflection that we began arranging the materials for the Essay, nor was it without considerable labour in selecting from the case-books those instances in which the tongue's aspect was described, and by the avoiding those in which the tongue's appearance might have been influenced by medicaments, that we were enabled to shape our proceedings; however, 'in all labour there is profit,' and the tongue presented itself under two principal aspects, namely, when the papillæ were developed, and when they were not observable.

"In pursuing the subject, by arranging the cases in a tabular form, it became apparent that when the papillæ, especially the filiform and tuberose, were prominent or florid, that the gastric symptoms were the most prevalent, and this circumstance led to the examining the symptoms attending a development of the different orders of the papillæ. A careful analysis of these cases established the inference, that the stomach was specially affected when the filiform or tuberose papillæ were developed; hence 'the tongue of gastric functional derangement.'

"A like review of the remaining cases led to the conclusion, that disturbance of the intestinal canal was accompanied with certain appearances of the tongue, the papillæ not being observable, and thus originated the 'tongue's aspect in functional derangement of the intestines.'"—P. vi.

Even if we had space to spare, it would have been utterly impossible to give the reader any thing like a correct idea of the contents of Dr. Williams' volume. The details communicated are surprisingly minute, and none but a most zealous and pains-taking observer could have had the patience to record and compare such a host of particulars. Those who feel an interest in all the curious niceties of symptomatology and diagnosis in reference to an individual organ of the body, cannot but be gratified with our author's work.

ON INDIGESTION AND CERTAIN BILIOUS DISORDERS CONJOINED WITH IT; TO WHICH ARE ADDED SHORT NOTES ON DIET. By *G. C. Child*, M.D., Physician to the Westminster Dispensary. Octavo, pp. 219. London: Churchill, 1847.

THE author has evidently expended much care and labour in the preparation of his work. Although not containing any thing with which every medical man of

any experience is not perfectly conversant, its contents certainly evince on the whole, an attentive observation of the phenomena of Dyspepsia, and a sound judg-ment in their discrimination and treatment. Dr. Child attempts, on several occasions, to reduce the study of the symptoms of this protean disease to a standard of greater accuracy and exactitude than has been done before, by frequent reference to the statistical data furnished by 200 cases of which he has kept a minute register. It is, however, very questionable whether any good can ever result from such elaborate divisions and sub-divisions as are found in the following passage on the subject of the " various pains observed in indigestion :"

" All the terms may be arranged in six groups.

I. Weight about the pit of the stomach, or front of the chest—and as more or less synonymous with this, may be regarded,

Distention.
Tightness.
Oppression.
Pressure.
Stoppage; the lodging of food, as if it would pass no further than the epigastrium.

II. Aching.—Gnawing.

A dull, wearing, or ' dead' pain.
A dragging or ' heavy' pain.

III. Sensation of heat (*fer chaud* of French writers).

Burning or hot pain.
Acridity.
Rawness, &c.

IV. A sensation like cramp.

Spasms (often applied by patients to sharp pain).
As if the stomach were fixed or nailed to, or drawn up against, the spine ; as if it were turned into bone ; as if a bone were in it.
A ball, bullet, or something hard at the epigastrium, or under the sternum.
A knot in the same place.
A drawing pain, forcing the patient to stoop, or ' bending him double.'
A severe dragging, twisting, or tearing pain.
As if a cord were drawn tightly round the waist.

V. Sharp pains.

Spasms (used also to denote cramp).
Acute, quick, or darting pain.
Plunging, twinging, or pinching.
Like pins and needles (often an anomalous pain).

VI. Anomalous pains form a less numerous class than one might expect, and are chiefly observed in the nervous, hysterical, and hypochondriacal. They are insufficient of themselves to characterize dyspepsia, and hence are always associated with some of the other pains above mentioned.

Beating, fluttering, hammering, pulsation.
' A moving' in the stomach ; ' nerves working.'
Tumbling, trickling.
A sensation of cold at the pit of the stomach.
A sinking, emptiness, or numbness at the same place.

" Table showing the comparative frequency of the different kinds of pain above mentioned in 200 well-marked cases of indigestion :—

Weight or oppression in	160 cases.
Gnawing or aching	121 „
Sharp pains	95 „
Hot or acrid sensations	40 „
Cramps or spasms	26 „ "

Such labour is almost like that of one seeking to describe the thousand forms of clouds in a summer sky, or the ever-varied hues upon a pigeon's breast. The "Short Notes on Diet," were surely not intended for the instruction of medical men; if designed for other readers, they should not have found a place in a work addressed to the profession.

LECTURES AND OBSERVATIONS ON CLINICAL SURGERY.   By *Andrew Ellis*.
Small 8vo. pp. 275.   Dublin, 1847.

ALTHOUGH the perusal of Mr. Ellis' little work impresses us with the belief that his Lectures must prove highly useful to those to whom they are addressed, yet they seem to us to scarcely contain sufficient of novelty or original observation to call for publication.   The author manifests a disposition, however, to independently examine the foundations of received opinions, in spite of the prescriptive authority of great names by which these may be supported, which, tempered as it yet is by rendering of due deference to these, is well deserving of imitation and approval.   We proceed to select a few passages from some of the Lectures.

Treatment of Wounds of the Brachial Artery.—After describing the various results of injury to this vessel, Mr. Ellis proceeds to give an account of their management, some portion of which is as follows :—

"Let us begin the consideration of this subject by asking what a surgeon ought to do, supposing he had reason to believe, from the history of the case and ocular evidence, that the brachial artery had been wounded ?   Under such circumstances, if the case were mine, I would proceed as follows :—In the first instance I would procure a long roller, and as much lint or sponge as would be sufficient to make a compress; the hæmorrhage being restrained, in the mean time, by an assistant; who either with, or without the aid of a tourniquet made efficient pressure on the brachial artery above the wound; I would proceed to apply the bandage from the fingers (the fingers themselves being included) up to the bend of the arm : I would then place the compress over the wound, and with repeated figure of 8 turns of the bandage, make moderate pressure, with the hope that such a wound might heal without the supervention of any aneurismal affection whatever.   I would then have the patient placed in bed, with his arm moderately extended on a pillow, and give directions that the bandage and compress should be kept constantly wet with a cold evaporating lotion.   I would likewise adopt, in a rigid manner, the antiphlogistic plan of treatment, and moderate the heart's action by the cautious administration of small doses of tartar-emetic and digitalis.   I have stated that I would keep the limb in the extended position; the reason why I consider this the best position is the following :—We are to suppose the wound in the artery is in the longitudinal direction, that is to say, that its greatest diameter corresponds with the long axis of the wounded vessel; this being the case, it is obvious that, by keeping the arm in the extended position, the extremities of the wound must be drawn far asunder; and in this way its lips or sides brought close to each other, and placed in a position favourable to union by adhesion.   If the patient could bear this state of things for five or six days, I would then cautiously remove the bandage ; but would not disturb the compress.   I would now apply a new roller with a moderate degree of tightness, and direct a continuation of the antiphlogistic plan of treatment, with some mitigation, for at least a week longer.   By this time the wound in the artery will, in all probability have healed, and the liability to aneurism passed away.   I have

known two cases treated in this way with complete success; one by the late Mr. T. Roney, and the other by the late Mr. Todd, both gentlemen of high professional attainments and of well-merited distinction."—P. 63.

This proceeding must, however, be discontinued if great pain and tension of the limb take place. Pressure having been thus tried in vain, and a diffused softish swelling attended with a "sort of undulatory pulsation" existing, we must open the tumour, remove the extravasated blood, and tie the artery above and below its wounded portion. In the case of *circumscribed* brachial aneurism the cure may be accomplished by compression or by the application of one ligature above the aneurismal tumour. The bandage already described should be applied with *moderate* tightness, great pressure not only being painful and sometimes dangerous by bursting the imperfectly formed sac, and converting the circumscribed into a diffused aneurism, but also in no-wise conducive to a cure. In the first volume of the *Dublin Journal* is an account of three cases treated by Dr. Cusack by means of compression applied over the tumour, Valsalva's treatment being coincidently employed. In two, the cure was accomplished without causing the obliteration of the arteries engaged. In the third, the sac gave way, and the case was then treated by ligature. According to Scarpa's investigations the cure of these aneurisms is generally effected without obliteration of the artery or healing of the original wound in its parietes—the cured aneurisms he examined appearing to have degenerated into small tumours, consisting of the fibrin of the blood which had externally established a connexion with the circumjacent cellular membrane, and internally with the aperture of the artery. "In one of the cases the inner part of the aneurismal opening was closed by a calcareous deposit." Compression tried in vain, we must cut down and apply a ligature to the vessel without disturbing the aneurism.

"Gentlemen, we have now arrived at the consideration of the best method of treating the arterio-venous or varicose aneurism. It is a well-established rule in surgery that we should never *operate* in a case of this kind unless when compelled to do so by urgent circumstances. For example, suppose pressure had been fairly tried without advantage, that the tumour is increasing in size, that it is painful and the limb swollen; when this state of things is established, the necessity for surgical interference is but too obvious. The operation which promises most advantage under such circumstances is that of tying the artery above the aneurismal tumour, as in the case I have just mentioned; leaving the tumour itself to the action of the absorbents. Judging from the literature of this subject, the operation should be undertaken with the utmost caution and circumspection, inasmuch as the records of surgery furnish but few cases in which it was not followed by untoward circumstances. I have myself witnessed but one case of this form of aneurism, in which the artery was tied. The case I allude to was treated by the late Mr. Hewson in the Meath Hospital. For some days after the operation the case appeared unpromising, the tumour having retained its former size and pulsation. On the third day after the operation, Mr. Hewson applied a compress of lint over the tumour, and retained it in this position by strips of adhesive plaster, which were drawn obliquely over it; but in such a manner as not to completely encircle the limb, so as to impede the return of venous blood. In the course of three or four days, the compress was cautiously removed for the purpose of ascertaining the state of the tumour, which was most satisfactory. The swelling was not one-half the size it had been previous to the application of the compress; it had acquired a solid feel particularly at its circumference, and the pulsation had become exceedingly obscure. The compress was again applied as before; the ligature came away in eight or nine days, and the patient left the hospital in five or six weeks perfectly cured.

"In cases of aneurismal varix the surgeon should never interfere beyond recommending the patient to wear a bandage constantly on the limb to prevent over-distension of the veins."—P. 73.

Rules for the Employment of the Trephine.—Mr. Ellis, after exhibiting the evils which resulted from the practice inculcated by Mr. Potts and his followers, states the limited number of circumstances under which the improvements of modern practice render this operation justifiable. 1. As it is a dangerous operation, it must not be undertaken unless it cannot render the patient's condition worse, or indeed unless it is likely to improve it. 2. It should be at once resorted to in the case of compound fracture, with depression, and bad constitutional symptoms. 3. It should be performed in a case of compound fracture, with depressed bone, and a foreign body, even although the constitutional symptoms be not urgent; for, in such a case, fatal inflammation may be afterwards set up, or the patient may become the subject of epilepsy or other diseased state of the brain. 4. Compound fracture with great depression, although there is no foreign body present, and the constitutional symptoms are slight, presents another case, but as eminent surgeons are here at issue, Mr. Ellis would not recommend interference in the case of children, unless the bone be depressed a full inch. We remember in the days of our pupillage, at St. Bartholmew's, nothing excited the deprecatory remarks of that formidable critical body, the Dressers, more than the apparent timidity which more than one of the surgeons manifested in meddling with this case of the category. Events, however, generally proved the correctness of their practice, and that in cases which were long watched after they had quitted the hospital. 5. In the case of contused wound of the scalp, especially if situated over the parietal bone, attended with fracture, without visible depression, but with bad constitutional symptoms, if reaction cannot be brought about by the usual means, rather than let the patient die without the chance, the trephine should be used in the possibility of the pressure being caused by the depression of the inner table, or the effusion of blood upon the dura mater. 6. In contused wound of the scalp, without visible fracture, but with very urgent constitutional symptoms, the same reasoning is employed by Mr. Ellis. 7. The same in violent contusion of the scalp, with bad constitutional symptoms. 8. In the case of recurring insensibility after temporary recovery from the effects of a blow on the head, the operation is always indicated, the compression arising from effused blood. 9. It is so likewise when the history and symptoms lead to the belief that matter has formed between the dura mater and skull, although it is seldom of service, in consequence of the deeper-seated portions of the organ being simultaneously affected. 10. The presence of a sinus must never prevent the operation, providing the cause of compression is there located.

It will be seen that Mr. Ellis admits of a greater extension of this operation than is generally now done. Much may be said, drawn from the desperate nature of these cases, in favour of such practice; but we believe that the instances of success are not sufficiently numerous to offer much encouragement.

Rupture of the Bladder.—"In the first place, it may, perhaps, appear somewhat strange to you, that the bladder should have given way, in both instances, in that part which is covered by peritoneum. Now you are not to consider this in the light of an accidental circumstance; in every case I am acquainted with, in which the bladder gave way, in consequence of falls or blows on the abdomen, the rupture took place in the peritoneal region of the organ. In support of this statement, I beg to refer you to two very important cases of this description, which have been published in the second volume of the '*Dublin Hospital Reports,*' by Dr. CUSACK; and also, to the ninth volume of the '*Dublin Journal of Medical Science,*' in which you will find the particulars of some interesting cases, detailed by my distinguished colleague, Dr. HARRISON. The only explanation I would venture to suggest, is the anatomical fact, that the superior and posterior regions are weaker than the other parts of the bladder; inasmuch as they do not receive any support from the reflections of the pelvic fasciæ

whilst the peritoneal covering, which is comparatively thin and delicate, and being, in common with all serous membranes, devoid of elasticity, is therefore incapable of accommodating itself to violence suddenly applied, and yields only by the laceration of its proper structure.

" The next point to which I am anxious to call your attention, is the difference which exists between the local consequences which result from urinary extravasations into the cellular and the serous tissues. I have already stated, that inflammation and mortification are the usual effects, when they take place in the cellular membrane; now, I wish you to understand that, in no instance with which I am acquainted, did mortification ensue from urinary extravasation into the cavity of the peritoneum. Judging from the usual effects of injury and irritation, when applied to this very delicate and sensitive membrane, it appears strange, that in cases of ruptured bladder, in which the peritoneum is not only wounded, but brought in contact with a very acrimonious fluid, it should be slow in taking on inflammatory action, and capable of resisting its gangrenous consequences."—P. 206.

Mr. Ellis appends to his Clinical Lectures a discourse which he delivered elsewhere on Hydrophobia, which contains a highly interesting summary of the leading facts bearing upon the subject. Appended to it is a collection of twelve cases, having for its object to prove " *that a tame or healthy dog may produce hydrophobia in a human subject.*" In eight of these, collected from various sources, the dog gave no prior or subsequent evidence of rabidity, and yet communicated fatal disease. " These cases ought, in my mind, to be deemed sufficient to convince the greatest sceptic, that the bite of a dog, which *is not rabid*, can produce hydrophobia in the human species !" Four other cases are cited in affirmation of another query, viz., " can a dog in perfect health, in a state of tranquillity, and when it does not bite or attempt to bite, produce hydrophobia in the human subject ?" In these the animal communicated the disease by licking the face or some abraded surface. The cases alluded to are not sufficiently particularized and authenticated to carry entire conviction to our minds; but we fully believe Mr. Ellis has here brought a most important question under the notice of the public, and one to which sufficient attention has not been hitherto paid.

PRACTICAL OBSERVATIONS ON MINERAL WATERS AND BATHS, WITH NOTES OF SOME CONTINENTAL CLIMATES, AND A RE-PRINT OF THE COLD WATER CURE. By *Edwin Lee*, Esq. 12mo. pp. 134. Churchill, 1846.

WE suppose no member of the profession in this country is so well acquainted with its actual state upon the Continent as the author of the little work before us. We have frequently derived advantage from the perusal of the accounts his somewhat prolific pen has furnished, and we can especially recommend the present production to the notice of our readers.

The practice of having recourse to the foreign mineral waters is, and is likely, in this age of railroads and augmented continental intercommunication, to continue to be an increasing one; and those who are consulted or advised by their patients previous to quitting home, should be made well aware that the mere recommendation to resort to the spas is too indefinite, the composition of their waters being so exceedingly various in its character as to render what might act beneficially in one case, a very dangerous remedy or an actual poison to the system in another. Few medical men have the opportunity of repairing to the Continent to examine into these matters for themselves, and therefore works like those of our respected friend the late editor of this Journal, and the present one by Mr. Lee, become of great utility in assisting us in giving useful advice. Mr. Lee more-

over, long as he has been accustomed to a continental residence, has not returned with that enthusiastic and exclusive admiration for every thing not to be found in this island, which is so ridiculous in some who have written, and in more who speak upon the subject. On the contrary, his remarks upon the limitations to the utility of the mineral waters are very discriminate and just, and although we think he has needlessly multiplied the extracts in their favour from the works of German writers, he seems fully aware that the native historians of particular spas are not creditable witnesses, and that many cases treated by their agency are so inappropriately, and would have done as well or better without their assistance. We quite agree with him in his general observation, that the English, from their impatient habit of expecting to see marked results quickly follow the use of medicines, have never done justice to these medicinal agents; and that in a numerous class of chronic diseases they may prove, by their almost imperceptible modification of the various secretions of the economy, of immense benefit.

After several introductory observations, Mr. Lee arranges the various mineral waters into certain classes, the characteristics of which are derived from their chemical composition; and indicates the names of the chief spas whose waters can thus be brought under these respective heads. He divides them into 1, *Sulphureous.* 2. *Chalybeate.* 3. *Saline Thermal,* consisting chiefly of " muriate of soda in combination with earthy or alkaline sulphates, carbonates and muriates, small quantities of metal, and the animal substance termed glairine, and a certain proportion of carbonic acid gas." 4. *Saline Aperient,* in which sulphate of soda or of magnesia is the predominating ingredient. 5. *Cold Salt,* or *Brine Springs.* 6. *Alkaline.* 7. *Acidulous Springs,* containing a large proportion of free carbonic acid. 8. *Slightly Mineralized Springs,* or, as they are called by some of the German writers, " chemically-indifferent springs."

" It will be seen, that although I have often mentioned the same diseases as likely to be benefited by different springs of the same class, and even by springs belonging to different classes, yet that some springs are more adapted to particular cases than others, even though they may appear to be very analogous. It is likewise true, that it may be said of several mineral waters, differing in their nature, (as of other therapeutic agents,) that they may be advantageously employed in similar diseases, abstractedly considered; and thus a sulphureous, a saline, or a chalybeate spring may be said, with truth, to be efficacious in scrofulous, bronchial, or rheumatic disease; but each of these and other classes of diseases varies so much in its nature in different individuals and under different circumstances, that it is only by studying the peculiarities in individual cases that the practitioner can best determine from which kind of spring most benefit is likely to be derived in any given case. Several mineral springs have for a long period enjoyed a special reputation, founded upon experience of their greater efficacy in certain classes of diseases. Thus, Ems and Cauterets have acquired a name for their powers in pulmonary affections; Carlsbad, Vichy, &c., for abdominal and liver derangement; Wiesbaden and Bourbonne les Bains, in rheumatic and paralytic complaints, and so forth; but it must not be inferred from this, that all pulmonary affections to which mineral waters are applicable, are necessarily to be sent to a spring resembling either Ems or Cauterets, nor that of Weisbaden, Bourbonne, and similar waters, are to be preferred in all cases of rheumatism or paralysis; as experience demonstrates that, in some affections of the lungs and air-passages, the above-mentioned waters would be prejudicial, and in which a water of a very different kind would be likely to be extremely beneficial; and also, that many cases of rheumatism and paralysis would be much more benefited by other waters, differing very greatly in their composition from those of Bourbonne or Wiesbaden. In this manner, (viz. the stating that such or such a spring is good for any particular disease, without special enquiry into the pathological and constitutional peculiarities), much harm has been done, and many invalids have consequently returned home disappointed, or worse than they

came; but even when a spring appears to the practitioner to be more particularly indicated, it would be unreasonable to expect that its administration is always to be attended with benefit, as various circumstances, such as idiosyncrasy of the patient, the state of the disease, error on the part of the practitioner in the recommendation and management of the course, or on the part of the patient as regards mode of living, &c., may occur to prevent a beneficial action."—P. 63.

Dr. Lee gives a general view of the different diseased conditions of the economy which these various waters and baths are usually employed for the correction of; and to which we can refer practitioners who are about to send patients abroad for much useful information, especially as the author's practical acquaintance with the true characters of the various climates, enables him to add much incidental information upon that head. The diseases of the economy specified as those in which an intelligent recourse to mineral waters may prove useful are— 1. Various chronic disordered states of the Digestive Organs, (the repleted condition of the abdominal venous system being, according to the German pathologists, a chief cause of many of the chronic diseases for which mineral waters prove the best remedies). 2. Gout and Rheumatism. 3. The Waters of Vichy in Calculous Disorders. 4. Scrofula. 5. Pulmonary Disease. 6. Chlorosis. 7. Various disordered states of the Nervous System. 8. Chronic Cutaneous Diseases. 9. Chronic Discharges, as Leucorrhœa, when not dependant on organic mischief. For these various conditions the different waters are pointed out with much discrimination.

Mr. Lee speaks of the utility of *artificial mineral waters* more favourably than many do, which is gratifying from so competent an observer, as these are so accessible at Brighton, within the compass of even a Cockney-trip. Their great expense, however, quite precludes their employment as baths, while in many affections the bathing is a far more essential means of cure than the mere ingurgitation of the water.

When drinking is the more essential part of the treatment, artificial waters have, in some respects, the advantage over natural ones, such as being available during the greater part of the year, instead of their employment being restricted to a few months in the summer, as is the case at the various baths: they may also in some cases be used as a preparatory measure, or subsequent to the use of the natural springs. Several of the most powerful waters being collected together in one establishment, if one which appeared to be indicated did not suit, recourse might be had to another; at all events the disappointment would not be so great as where a person had been induced to make a journey of several hundred miles to a spring, and found it unsuited to his case; a circumstance of not unfrequent occurrence, and often depending upon the adoption of the advice of those who are but little acquainted with the properties and effects of the different springs, or who are prejudiced in favour of particular ones; though it must be admitted that patients occasionally suffer disappointment from the difficulty which even experienced practitioners have in forming an opinion, in obscure chronic cases, of the means most likely to be of service; from the intractableness or incurability of the complaints; from the idiosyncrasy of individuals, &c., in consequence of which the effects of a mineral spring cannot always be estimated before trial has been made; as is likewise seen to be the case with many remedies in the ordinary practice of medicine, when medicines apparently indicated disagree, or do not produce the effects anticipated."—P. 121.

Mr. Lee completes the volume by stitching into it a re-print of his little *brochure* upon the Cold Water Cure. He is no enthusiastic admirer of its virtues, but freely admits the errors and mischief which have resulted from its so general adoption in Germany. With ourselves it is evidently on the wane. What is to be the next fashionable medical delusion?

On the Correlation of Physical Forces. By *W. R. Grove*, Esq.
M.A., F.R.S,, Barrister at Law.   8vo. pp. 50.   Highley, 1846.

The present Essay is the substance of a course of Lectures delivered by Mr.
Grove at the London Institution, and most properly published at the request of the
Proprietors.   We believe we are correct in saying that the views herein unfolded
have met with the acceptation of some of the leading observers in physical and
natural science ; and to our own minds the reasoning of the author carries con-
viction.

After adverting to the impossibility of our correctly applying the term cause
otherwise than in a mere secondary sense, as indicating antecedent forces, it being
predicable of no physical agency that it is abstractedly the cause of another, the
author thus states the object he has in view :—

" The position which I seek to establish in this Essay is, that the various im-
ponderable agencies, or the affections of matter which constitute the main objects
of experimental physics, viz., Heat, Light, Electricity, Magnetism, Chemical Affin-
ity, and Motion are all Correlative, or have a reciprocal dependence.   That neither,
taken abstractedly, can be said to be the essential or proximate cause of the others,
but that either may, as a force, produce or be convertible into the other; thus heat
may mediately or immediately produce electricity, electricity may produce heat;
and so of the rest.

" The term Force, although used in very different senses by different authors,
in its limited sense may be defined as that which produces or resists Motion.
Although strongly inclined to believe that the five other affections of matter,
which I have above named, are, and will ultimately be resolved into, modes of
motion, it would be going too far, at present, to assume their identity with it; I
therefore use the term Force, in reference to them, as meaning that active principle
inseparable from matter, which induces its various changes."

In pursuance of this idea, the author enters into a detailed demonstration,
which the facts already acquired by science enable him to do, that each of these
affections or properties of matter is convertible into the five others.   Thus, in
respect to *Motion*, bodies impinging on each other, according as they may be ho-
mogeneous or heterogeneous, elicit *heat* or *electricity*.   Heat and Electricity so
produced will produce *magnetism*.   *Light*, again, may be produced directly during
friction, or mediately by means of electricity.   *Chemical affinity* too, will result
from electricity, which has initiated in motion.   " Lastly, motion may again be
reproduced by the forces which have emanated from motion ; thus, the diver-
gence of the electrometer, the revolution of the electrical wheel, the deflection of
the magnetic needle, are palpable movements reproduced by the intermediate modes
of force, which have themselves been originated in motion."   So, too, if Heat,
Light, Electricity, Magnetism, or Chemical Affinity, be taken as the starting
point, the whole series may be induced.   We regret that our limits prevent our
following this demonstration in detail, as it is well deserving of our doing, espe-
cially as there is incidentally introduced some important speculations upon the
non-existence of latent heat.   We, however, cordially recommend the work to
the notice of our readers as the ablest attempt of our time to simplify our views
of physical science; and content ourselves with quoting a few of the concluding
observations.

" The sense I have attached to the word correlation, in treating of physical
phenomena, will, I think, be evident, from the previous parts of this essay, to be
that of a reciprocal production or convertibility ; in other words, that any force
capable of producing or being convertible into another may, in its turn be pro-
duced by it,—nay, more, can be itself resisted by the force it produces, in pro-
portion to the energy of such production, as action is ever accompanied and re-

sisted by reaction; thus, the action of an electro-magnetic machine is reacted upon by the magneto-electricity developed by its action.

" The evolution of one force or mode of force into another, has induced many to regard all the different natural agencies as reducible to unity, and as resulting from one force which is the efficient cause of all the others: thus, one party writes to prove that electricity is the cause of every change in matter; another that chemical action is the cause of every thing; another that heat is the universal cause, —and so on. If, as I have submitted to you, the true expression of the fact is, that each mode of force is capable of producing the other, then any view which regards either of them as abstractedly the efficient cause of all the rest is erroneous; the view has, I believe, arisen from a confusion between the abstract or generalized meaning of the term cause, and its concrete or special sense,—the word itself being indiscriminately used in both these senses.

" Another confusion of terms has arisen, and has, indeed, much embarrassed me in enunciating the propositions sought to be proved in these pages, on account of the imperfection of scientific language; an imperfection in great measure unavoidable, it is true, but not the less embarrassing.

" Thus the words light, heat, electricity, and magnetism, are constantly used in two senses, viz., that of the force producing, or the subjective idea of force or power, and of the effect produced, or the objective phenomenon. The word motion, indeed, is only applied to the effect, and not to the force,—and chemical affinity is generally applied to the force, and not to the effect; but the other four terms are applied indiscriminately to both, for want of a distinct terminology."

RESEARCHES INTO THE PHYSICAL HISTORY OF MANKIND. By *James Cowle Prichard*, M.D., F.R.S., M.R.I.A. Vol. V. 8vo. pp. 570. Sherwood, 1847.

THIS volume, containing the Ethnography of the various people of the innumerable islands of the great Southern Ocean (the Oceanic Nations) and of the American Continent, completes the magnificent work which has been so many years in progress. From the very nature of the *material* this portion of the work is less interesting than some of its predecessors; but it is worked out with the same keenness of perception and indefatigable research, bestowed by the author upon them. Having completed his great undertaking, of which our country and profession may well feel proud, Dr. Prichard very modestly, and in our opinion far too briefly, reviews the ground he has passed over. In the first volume he had, from a consideration of the anatomical, physiological, and psychological characteristics of the various races of mankind, announced his conviction that their diversities did not amount to specific differences, but only to mere varieties of one species. The histories of the various races of men inhabiting our globe successively undertaken in these volumes, have furnished a mass of facts corroborative of the analogy deducible from the contemplation of the habitudes of the other portions of animated nature, and converting it into a positive demonstration. At least this is our conviction, and we believe that of most persons who have taken interest in the question since Dr. Prichard commenced its investigation.

On the Mechanism of Respiration. By *Francis Sibson*, Esq. (From the Philosophical Transactions, Part 4, 1846.) 4to. pp. 40. Plates.

This is an elaborate Essay from the pen of an able observer, of whose former labours in the same field we have had much pleasure in speaking favourably on another occasion.* Mr. Sibson's object is to distribute the respiratory muscles in a somewhat different order, as regards their inspiratory and expiratory action, to that now adopted. To this end he has minutely examined the anatomy in a great variety of animals, as reptiles, birds, mammals (some, we regret to say, by means of vivisection), and by a comparison of these with that of man, offers a new explanation of the mechanism. We regret that, with our limited space, and deprived of the aid of Mr. Sibson's beautiful engravings and ingenious diagrams, we despair setting his conclusions fairly before our readers, and must be content to refer those who feel interested in the subject to the work itself, easily accessible as it is, in forming a portion of the Philosophical Transactions.

The London and Provincial Medical Directory, 1847. pp. 600. Churchill.

This now conjoined work promises to be of great utility to the profession. The proprietors, we believe, spared neither pains nor expense to acquire accurate information, and, as far as the metropolis is concerned, the Directory may be regarded as nearly perfect. If it is, however, to be made an annual paying publication the price must be reduced, which may be easily accomplished by leaving out the immense proportion of matter utterly irrelevant to the true purposes of a directory, and by employing abbreviations, which now seem studiously avoided. In this way a half-crown annual might be easily constructed, which would be purchased, not by a few hundreds, but by many thousands. But for this, the platitudes of the anonymous *arbiter elegantium* concerning medical etiquette, the ridiculous self-chronicling of works, papers, or other forgotten literary claims to notice, and in fact all extraneous matter whatever, save that which as advertisements pays for its place, must be swept away; and a simple announcement of name, address, and qualification alone retained.

At the end of the work an analysis of its contents, giving something like a synoptical view of the existing classification of the profession might be given. Upon a small scale we have attempted this as regards the metropolis portion of the Directory; and find it furnishes the following numbers: *Consulting Physicians* 301, of whom 30 practise as *Physician Accoucheurs: Physicians* holding legitimate degrees, but yet engaging in *general practice* also, 133: *Consulting Surgeons*, including the leading dentists, 176: Practitioners only holding the *College of Surgeons' Diploma*, 468: Practitioners only holding the *Apothecaries' License*, 275: Practitioners holding both *license* and *diploma*, 990. Besides these, 70 practitioners have returned their names as practising before 1815. We have not counted the Erlangen, Giessen, &c. degrees, but referred their holders to their English qualifications. These numbers give us a total of 2413 authorized practitioners, besides which there is a list of more than 360 persons (!) who have returned no qualification, and who, it is but fair to suppose, possess none. We have not analyzed the country list, believing it incomplete; but we make the sum total of its names amount to 8,286, which added to those of London, gives 10,699 for England and Wales.

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* Med.-Chir. Review, No. 83.

BIBLIOGRAPHICAL RECORD.

1. On the Relations of the Physician to the Sick, to the Public, and to his Colleagues. By the late *Christopher William Hufeland*, M.D. Pp. 41. Oxford & London.

2. Elements of Chemistry, including the actual State and prevalent Doctrines of the Science. By the late *Edward Turner*, M.D. 8th Edition. Edited by Baron *Liebig* and *William Gregory*, M.D. Part, I. Inorganic Chemistry. 8vo, pp. 688. London.

3. A New Universal, Etymological, and Pronouncing Dictionary of the English Language, embracing all the Terms used in Art, Science, and Literature. Parts 10, 11, 12, 13. Royal 8vo. London, Gilbert.

This able and very useful work progresses with spirit.

4. Gilbert's Modern Atlas of the World for the People, with an Introduction to the Physical Geography of the Globe, with an Alphabetical Index of 25,000 Places. Parts 8, 9, 10. Small Folio. London.

Prepared with very great care, and distinguished for extreme accuracy. We can confidently recommend it.

5. A System of Surgery. By *J. M. Chelius*. Translated from the German, and accompanied with additional Notes and observations, by *John F. South*. Part 15. 8vo. London.

6. Clinical Facts and Reflections; also, Remarks on the Impunity of Murder in some Cases of presumed Insanity. By *Thomas Mayo*, M.D. 8vo, pp. 224. London.

7. The Medical Examiner and Record of Medical Science, Edited by *Robert M. Huston*, M.D. Nos. 19 and 20. New Series. July and August, 1846. Philadelphia.

8. Lectures on the Comparative Anatomy and Physiology of the Vertebrate Animals. Delivered at the Royal College of Surgeons of England in 1844 and 1846. By *Richard Owen*, F.R.S. Part I. Fishes. Illustrated with numerous Woodcuts. 8vo, pp. 319. London, 1846.
In our next.

9. The Retrospect of Medicine; being a Half-yearly Journal, containing a Retrospective View of every Discovery and practical Improvement in the Medical Sciences. Edited by *W. Braithwaite*. Vol. XIV. July to December, 1846. 8vo, pp. 466. London.

10. An Essay on the Tongue, in Functional Derangement of the Stomach and Bowels, and on the appropriate Treatment; also, the Tongue's Aspect in Organic Disease of the Lungs and Heart, &c. By *Edward Williams*, M.D., Cantab, &c. Second Edition. 8vo, pp. 236. London, 1846.

11. Practical Observations on some of the Diseases of the Stomach and Alimentary Canal. By *James Alderson*, M.D. 8vo, pp. 223. Plates. London, 1847.

12. Researches into the Physical History of Mankind. By *James Cowles Prichard*, M.D. Vol. V. Researches into the History of the Oceanic and of the American Nations. 8vo, pp. 585. Plates, London, 1847.

13. The American Journal of the Medical Sciences. Edited by *Isaac Hays*, M.D. Nos. 24 and 25. Oct. 1846. Jan. 1847. Philadelphia.

14. On the Correlation of Physical Forces; being the Substance of a Course of Lectures delivered in the London Institution in the Year 1843. By *W. R. Grove*, M.A., F.R.S. 8vo, pp. 52. London.

15. Experimental Researches on the Post-mortem Contractility of the Muscles, with Observations on the Reflex Theory. By *Bennet Dowler*, M.D. Reprinted from the New York Journal of Medicine for May. 8vo, pp. 39. New York.

16. Lecture Introductory to a Course of Clinical Medicine, delivered in the Theatre of Queen's College, Birmingham, on Tuesday, Dec. 1st, 1846. By *Samuel Wright*, M.D. 8vo, pp. 23. London.

Well worthy the attention of the clinical student.

17. The Half-yearly Abstract of the Medical Sciences; being a practical and analytical Digest of the Contents of the principal British and Continental Medical Works published in the preceding Six Months; together with a series of Critical Reports on the Progress of Medicine and the Collateral Sciences during the same Period. Edited by *W. H. Ranking*, M.D. Vol. XIV. July—Dec. 1846. 8vo. pp. 492. London.

18. Body and Soul; or Life, Mind and Matter, considered as to their peculiar Nature and combined Condition in Living Things, with a View to render the Physiology of Life and Mind more easily understood by the general Reader. Illustrated by Drawings. By *George Redford*, M.R.C.S. 8vo, pp. 242. London, 1847.

19. The Nature and Faculties of the Sympathetic Nerve. By *Joseph Swan*. 8vo, pp. 63. London, 1847.

20. An Inquiry into the Action of Mercury on the Living Body. By *Joseph Swan*. Third Edition. 8vo, pp. 34. London 1847.

21. Letters to the Right Hon. Lord J. Russell, M.P., on the Drainage of the Metropolis, State of the Thames, and Waste of Fertilizing Matter; with an Appendix, containing Statements respecting the Impracticability of the Plan of the Metropolitan Sewerage Company, &c., and a Map of the proposed Works of the London Sewerage Company. 8vo, pp. 16. London, 1847.

22. On Indigestion and certain Bilious Disorders often conjoined with it; to which are added, short Notes on Diet. By *George Chaplin Child*, M.D. 8vo, pp. 230. London, 1847.

23. A manual of the Principles and Practice of Ophthalmic Medicine and Surgery. By J. Whorton Jones. F.R.S. 8vo, pp. 606. London, 1847.

24. The London and Provincial Medical Directory, 1847. 8vo, pp. 568. London.

25. On Tumours of the Uterus and its Appendages. Jacksonian Prize Dissertation. By *Thomas Stafford Lee.* 8vo, pp. 290. London, 1847.

26. On the Mechanism of Respiration. By *Francis Sibson,* Esq. From the Philosophical Transactions. Part IV. for 1846. 4to, pp. 50. Plates. London, 1847.

27. Observations on the History and Treatment of Dysentery and its Combinations; with an Examination of their Claims to a Contagious Character, and an Inquiry into the Source of Contagion in its Analogous Diseases, Angina, Erysipelas, Hospital Gangrene, and Puerperal Fever. By *William Harty,* M.D. Second Edition. 8vo, pp. 393. London, 1847.

We shall give an extended review of this excellent work in our next number. It is full of most interesting and valuable information.

28. Medical Statistics, their Force and Fallacies. A Lecture delivered in Park Street School of Medicine. Nov. 4th, 1846. Introductory to the Course on the Theory and practice of Physic. By *James F. Duncan,* M.D. 8vo, pp. 42. Dublin.

Our notice is unavoidably deferred.

29. Outlines of Structural and Physiological Botany. By *Arthur Henfrey,* F.L.S. Foolscap 8vo, pp. 261, with numerous Illustrations. London, 1847.

30. Janus. Zeitschrift fur Geschichte und Literatur der Medecin. Von Dr. *A. W. E. Henschel.* II. Band. I. Heft. Breslau, 1847.

[This journal is devoted, in a particular manner, to the literature and history of Medical Science. It is conducted by Dr. Henschel, with the aid of many of the most celebrated medical scholars in Germany and France; the only English name, appearing among his collaborateurs, is that of our distinguished friend, Dr. Greenhill of Oxford. The chief articles in the present number are, a paper by Dr. Ermerins of Groningen, on the Galenic Text of Hippocrates; one on the "Morbus Cardiacus" of the old Physicians; one on the distinguished Physicians and Surgeons of the 13th and 14th Centuries; and a most admirable one on Medical Reform, more especially in reference to medical education, by Dr. Carus. Had space permitted, we should have given some extracts from this last paper.

31. Observations on Cancer. By *John Hughes Bennett,* M.D., F.R.S.E. (*From the Edinburgh Journal of Medical Science, for March* 1847.)

32. On the Sanatory Condition of Newcastle-on-Tyne, and the Means necessary for its improvement; being a Lecture delivered before the Literary and Philosophical Society of that Town, on the 10th of February, 1847. By *George Robinson,* M.D. 8vo, pp. 58.

33. A Treatise on Diet and Regimen. By *William Henry Robertson,* M.D. 4th Edition, Part I. 8vo, pp. 124. London, 1847.
In our next.

34. Gray's Supplement to the Pharmacopœia; being a concise but comprehensive Dispensatory and Manual of Facts and Formulæ for the Chemist, Druggist, and Medical Practitioner. Entirely re-written, arranged, and considerably enlarged. By *Theophilus Redwood.* 8vo, pp. 1122. London 1847.
In our next.

35. On Wounds and Injuries of the Abdomen and Pelvis; being the Second Part of the Lectures on some of the more important points in Surgery. By *G. J. Guthrie.* 8vo, pp. 73. London, 1847.
In our next.

36. The Royal Gazette of British Guiana, September 26, 1846.
This number contains some useful colonial hospital statistics, very creditable to Dr. Blair, their compiler.

37. On Cataract, Artificial Pupil, and Strabismus. By *F. H. Brett,* M.D. F.R.C.S. 8vo, pp. 89, Woodcuts. London, 1847.

38. Copland's Dictionary of Practical Medicine. Part XI.

39. Revue Medicale, from August to Nov. 1846.
In exchange.

40. Dublin Medical Review, No. 5.
In exchange.

41. Edinburgh Medical and Surgical Journal for January.
In exchange.

42. British and Foreign Medical Review, for January.
In exchange.

43. Edinburgh Monthly Journal of Medical Science, for January, February and March.
In exchange.

44. L'Union Medicale. January to April.
In exchange.

45. Medical Gazette, January to April.
In exchange.

46. Gazette Medicale, January to April.
In exchange.

Want of room compels us to omit the Selections from Foreign Journals in our present number.

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